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Annual Special Issue June 25,1955

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Since the original synthesis of 'Amytal' over 30 years ago, continued research by Eli Lilly and Company has resulted in a comprehensive Barbiturate Range.

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1 gr. and 3 grs.

'Pulvules' 'SECONAL SODIUM'

brand Quinalbarbitone Sodium Quick onset, short duration. $\frac{3}{4}$ gr. and $1\frac{1}{2}$ grs.

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'Pulvules' 'SODIUM AMYTAL'

brand Sodium Amylobarbitone Medium onset and duration.

Tablets 'AMYTAL'

brand Amylobarbitone Quick onset, medium duration $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and $1\frac{1}{2}$ grs.

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BASINGSTOKE, ENGLAND



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Between 1st June and 31st July we will supply 3 dozen sachets for the price of 2 dozen up to a maximum quantity of 6 dozen per shop!

That means you make 78% profit on each 3 dozen! Hurry! Get your order in now! The address is: County Laboratories Ltd., Honeypot Lane, Stanmore, Middlesex. Telephone WORdsworth 4321.

Nation-wide advertising to 33,632,000 readers!

Beginning in August—and regularly throughout the year, national newspapers and women's magazines will carry large space advertisements for new Amami Lotion Shampoo. Total circulation is 19,710,743. Estimated readership 33,632,000.

Expect a big demand, and a *steady* demand for this new, miraculously mild single-lathering shampoo!



PRESFERSUL

TRADE MARK

'Prescoted' Ferrous Sulphate Compound Tablets B.P.C.

Towards reducing the risk of ferrous sulphate poisoning of children

The rising incidence of fatal medicinal poisoning of children during recent years has been much commented upon in the medical press, but not explained. According to Fraser (*Practitioner*, June 1954, p.649-654), out of 231 such deaths of British children in the five years 1948—1952, the largest group was due to ferrous sulphate tablets (33 deaths).

The British Medical Journal editorially (Nov. 28, 1953, p.1208) has pointed to the duty of chemists to their customers in this connection, and Watkins, Bray and Gray (in the same journal Feb. 6, 1954, p.335) reporting on one fatal case, hoped that doing so would "strengthen the attempts to force the hand of the manufacturers of 'green sugar-coated ferrous sulphate pills' to do something to alter their fatal (literally) attractiveness to small children". In June of last year the Council of the Pharmaceutical Society adopted a resolution to discourage the production of "gaily-coloured tablets

which are a potential danger to children". In deference to these opinions we have used the new technique of press-coating, devised in the laboratories of Evans Medical, to produce Tab. Ferr. Sulph. Co. B.P.C. with a virtually tasteless white coat which effectively masks the nauseating taste of ferrous sulphate but is no more attractive in appearance than any plain white tablet.

Although fully complying with the standards of the B.P.C. and N.F., the new tablets have been given the trade name PRESFERSUL to distinguish them from other standard tablets prepared by the conventional process. Prescribers should use the name PRESFERSUL if, for reasons of safety, they wish these tablets to be dispensed in preference to other forms of Tab. Ferr. Sulph. Co. Pharmacists are at liberty to dispense PRESFERSUL when Tab. Ferr. Sulp. Co. is prescribed, but will no doubt wish to explain to patients the deliberate reason for the different appearance.

The new press-coating technique has made it possible, by special formulation, to make PRESFERSUL Tablets comply with a maximum disintegration time specification of 15 minutes, a standard which the official publications normally impose only for uncoated tablets.

PRESFERSUL TABLETS

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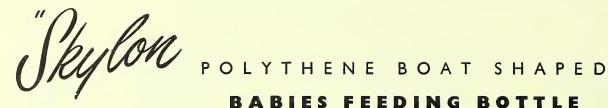
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This new boat shaped babies' polythene feeding bottle has been specially developed to meet popular request. It is unbreakable, hygienic, tasteless, odourlessand unaffected by foodstuffs. Openings at either end make for easy cleaning and its light weight makes it ideal for the small infant. All standard teats and valves will fit the necks.



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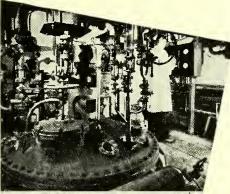


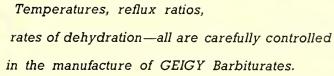


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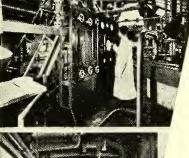




Control is exercised to ensure that GEIGY

Barbiturates are produced in bulk to a constant

degree of purity.





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Amylobarbitone
Sodium B.P.C.
Cyclobarbitone Calcium

Methylphenobarbitone B.P.

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Sodium B.P.
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LEEDS

IMPERIAL CHEMICAL INDUSTRIES

RECORD GROUP SALES

The 28th annual general meeting of Imperial Chemical Industries, Ltd., was held on June 16 in London.

Dr. Alexander Fleck, the chairman, in the course of his speech said:—The consolidated sales of the Group, after deducting the value of the sales made by our new subsidiaries, have increased from £282 millions to £327 millions—an increase of £45 millions or 16 per cent, over the figure for 1953, itself at that time the highest in our history. The Company's home sales and direct exports each increased by approximately the same percentage.

I should like most specially to draw your attention to the table of price indices in which the changes in home trade prices of the Company's products are compared with other significant indices, I am sure you will agree that the comparison shows the Company's prices in a very favourable light, Since 1938 the cost of our raw materials has risen by 272 per cent, and the earnings of our workers have risen by 202 per cent, For the same period the Board of Trade wholesale price index increased by 225 per cent, In comparison with these increases (each of which exceeds 200 per cent,) the prices at which ICI sells its products in the home market have risen by only 91 per cent, This, I think you will also agree, shows the remarkable success which has attended the Company's policy of keeping its selling prices as low and as stable as possible, Low and stable prices encourage our customers to use more of our products, and as our products are used by many British industries, we believe that our price policy aids and supports the economy of the country as a whole.

Between 1953 and 1954 the Company's price index for home sales has moved up by one point only, and the increase in profit for 1954 is also attributable to increase in volume, coupled with improvements in efficiency due to Work Study and other factors.

The Company will continue this price policy and will aim not only at absorbing increased costs but, wherever practicable, at seeing that reductions in costs resulting from improve

to erode our material standards.

EXPORTS AND OVERSEAS INTERESTS

At £67½ millions the Company's exports were a record and showed an increase of 16 per cent, over the previous year. This increase in the value of exports represents a still greater rise in the volume of

an increase of 16 per cent, over the previous year, This increase in the value of exports represents a still greater rise in the volume of exports.

I regard this high export figure as a particularly significant feature of the year's trading, because it has been achieved in the face of keen competition from other major chemical producting countries and in spite of the strong demand for our products from the home market. Indeed, if indirect exports were included, it would be seen that more than 40 per cent, of the Company's production now goes abroad.

A number of our overseas companies are now substantial manufacturing entities, and when I tell you that the total turnover of the Company's overseas business (both local manufacture and imports from the United Kingdom) through subsidiary and associated companies is now approaching in value ICI's sales in the United Kingdom, I am sure you will appreciate how important our overseas interests are.

It is worthy of note that the net ICI Ordinary dividend, requiring itst under £8 millions, represents rather less than 37 per cent, of the net income of the year, £21½ millions, Furthermore, this Ordinary dividend, requiring £14 millions before deduction of income tax, represents a return of 4-8 per cent, gross on an employed capital of £295 millions, which according to the Company's balance sheet is the employed capital belonging to the Ordinary stockholders.

I referred last year to the Employees' Profit-Sharing Scheme then being introduced so as to operate from 1st January, 1954. The Board regard it as a valuable development in industrial relations and one means of emphasising the essential unity and partnership of all those who are engaged in the Company's business.

CURRENT YEAR'S TRADING

As regards current trading, I am pleased to tell you that in 1955 we have so far experienced a period of great activity. The general level of both home and export sales is well above that of the corresponding period of last year. In fact, I do not think I can do better than repeat the words that I used to the stockholders last year and say that "So far this year the Company has enjoyed, in common with other industries in this country, a period of expansion, and the prospects are in general good."

This of course, assumes that the very serious strikes which so

This, of course, assumes that the very serious strikes which so gravely affect our national economy are not allowed to recur and that our united efforts can be successfully directed to minimising, if not eradicating, the deplorable setback which the country as a whole has

suffered.

On the other side of the account, I would tell you that the increased level of sales this year, to which I have referred, is due to some extent to production now coming forward from new plants which have recently been completed. Competition, particularly overseas, is strong, but we are confident that, provided our prices do not have to be put up because of rising costs at home, we can meet this competition and make still further progress.

The report was adopted.

Do not disappoint your customers -stock and display Powders and tablets for the safe and speedy relief of headaches, colds, chills, rheumatic and nerve pains.

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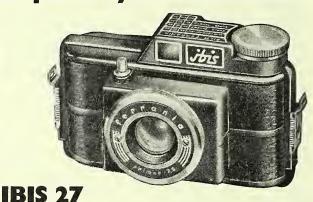
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Takes 8 exposures, 2½ in. x 1½ in. on No. 127 film. Ferrania Primar 7.5 cm. lens, optical eye-level viewfinder which gives clear bright image, and smooth

which gives clear bright image, and smooth action shutter for instantaneous exposures. Patent safety device prevents the shutter being released until the lens is correctly positioned.

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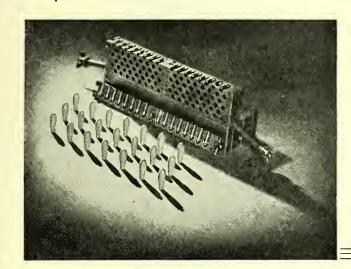
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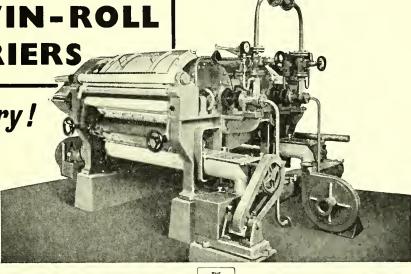


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Drier rolls chilled cast iron 40 in. long x 32 in. dia. for max. 74 lbs./sq. in. w.p. fitted air cooled doctor blades; rotary disc distribution trough; air spray jets and worm discharge conveyors.

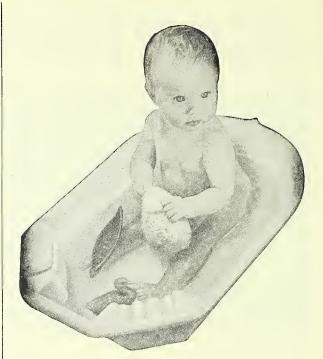
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LIGHT to handle and, at the same time, virtually unbreakable, the 'Plastabath' is safer and much more convenient in use. Mothers are quick to realize these advantages and the fact that size and shape are just right. The material, too, is soft-surfaced, although tough and resistant to wear. Also there is the Ekco matching Plastapot for the nursery. Get in quickly with these new lines—there's a genuine market!



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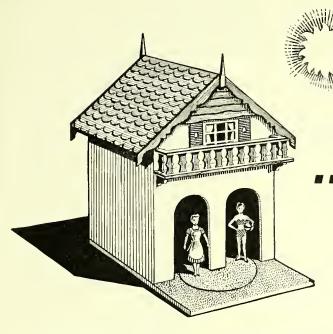
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Display outers of I dozen tubes with detachable Sunburn Crowner.

9/6 per doz., plus 25% P.T. Retail **1/6**



burn cream





AYRTON SAUNDERS

HANOVER STREET LIVERPOOL
Telephone Royal 8282



Brushes with the brilliant touch

Brilliant is the word for SPA. Brilliant in design, brilliant in action, and brilliant in their sparkling colours. Tufted with glittering nylon, or the finest bristle, there is a SPA brush for every personal need.

SPA TOOTHBRUSHES

Available in Sparklon, the extra flexible nylon or specially selected bristle, shorthead or spearhead, they've given a new brilliance to the nation's teeth.

SPA GIFT SETS

Perfect for any dressing table, these gift sets are enormously popular. There is a very wide range to choose from. Packed in attractive acetate gift boxes, they range from travel sets for women to men's military brush sets.

SPA NAILBRUSHES

Sturdily designed, they are always demanded by people who CARE for their hands. Available with wing backs or handles.

Spa also make fine military hairbrushes, infant and junior toothbrushes, a delicately textured baby hairbrush, a ladies' complexion brush and—of course—a wide range of high quality ladies' hairbrushes, combs, brushcombs and pocket clothes brushes.



All trade enquiries to:

SPA BRUSHES LTD.

FREEMAN WORKS · CHESHAM · BUCKS

MEGGESON

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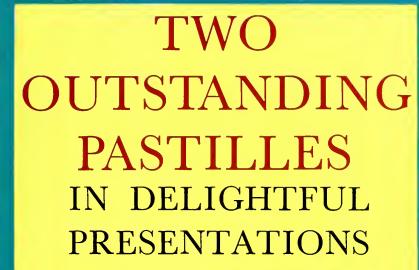
Lemon & Honey

PASTILLES

HE NAME BEHIND



FOR OVER A CENTURY AND A HALF



Perfect pastilles Improved formulæ Distinctive colourful tins Eye-catching show-outers

RETAIL PRICE 1/3 TRADE PRICE: 10/- PER DOZEN FREE OF PURCHASE TAX



MEGGESON GLYCERINE &

MEGGESON

MEGGESON & CO. LTD, LONDON, S.E.16





These striking new Self-Service Dispensers





give an even greater boost to HALEX sales

INDISPENSABLE IS THE WORD

... for these colourful new Comb Dispensers! The response from the trade has been extremely encouraging and every day more and more orders pour in. Retailers say—"They're selling the combs... and fast!"

If you haven't ordered these hardworking sales-teams (for both nylon and acetate combs) get in touch with your usual supplier right away. As well as providing an attractive eye-catching display, Halex Comb Dispensers considerably simplify ordering, stocking and selling. And remember they cost you nothing!

HALEX (A DIVISION OF THE BRITISH XYLONITE CO. LTD.)
HIGHAMS PARK, LONDON, E.4.



The fastest/roll films backed by big selling plans

Gevaert roll films already famous among discerning photographers for their high sensitivity, bright gradation and fine grain will be more popular than ever this year. Full scale advertising in large circulation newspapers and magazines is being launched all over the whole country—well backed up by attractive point-of-sale material and rail transport publicity. It will pay you to stock Gevaert lines . . . The new big seller for the popular market.



Roll films GEVACHROME 30 GEVACOLOR

CETAVLO

Cetrimide B.P.

The Detergent and Bactericide



SINCE 'Cetavlon' was originally introduced and developed some 12 years ago, I.C.I. have carried out extensive research on this outstanding bactericide and detergent. This work led to the introduction of the present quality fine grade 'Cetavlon', enhanced in purity and potency. By achieving a correct balance of the long chain alcohols used as starting materials, its solubility has been increased and thus stock solutions may be readily prepared.

Notable Features

- Actively bactericidal against a wide range of Gram-positive and Gram-negative organisms, including Ps. pyocyanea.
- Outstanding as a surgical deter-
- A useful bacteriostatic and surfaceactive agent.
- Contains no significant amount of saline matter.
- Stock solutions of up to 20% may be prepared. These are stable to normal temperature variations and do not precipitate.

Available as:

'Cetavlon' Powder

Containers of 50 grammes, 500 grammes and 2 kilogrammes.

'Cetavlon' Concentrate 20%

Bottles of 100 c.c., 500 c.c. and 2 litres.

'Cetavlon' Tincture 0.5%

Bottles of 100 c.c. and 500 c.c.

'Cetavlex' Cream 0.5%

Tubes of 50 grammes and Jars of 500 grammes.

IMPERIAL CHEMICAL (PHARMACEUTICALS) LIMITED

A subsidiary company of Imperial Chemical Industries Ltd.

WILMSLOW · MANCHESTER Ph.386/2







CAPSULES each containing 0.25 G. (3\[^3_4\] gr.) of chloral hydrate. Bottles of 100-19/- List + P.T. 3/2.

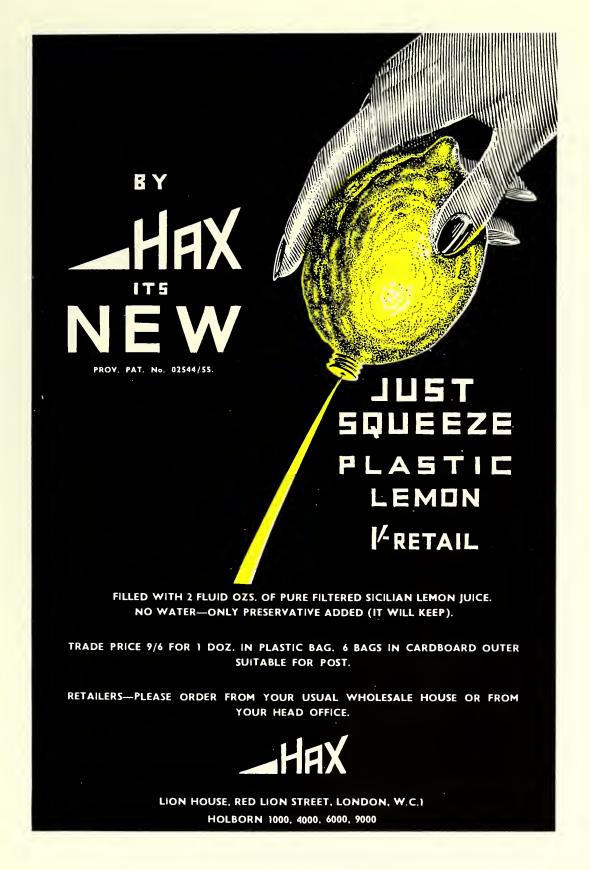
ELIXIR of chloral glycerolate containing the equivalent of 1.6 G. (25 gr.) of chloral hydrate per fl. oz. Bottles of 4 fl. oz.—3/- List + P.T. 6d. and 16 fl. oz.—10/6 List + 1/9 P.T.

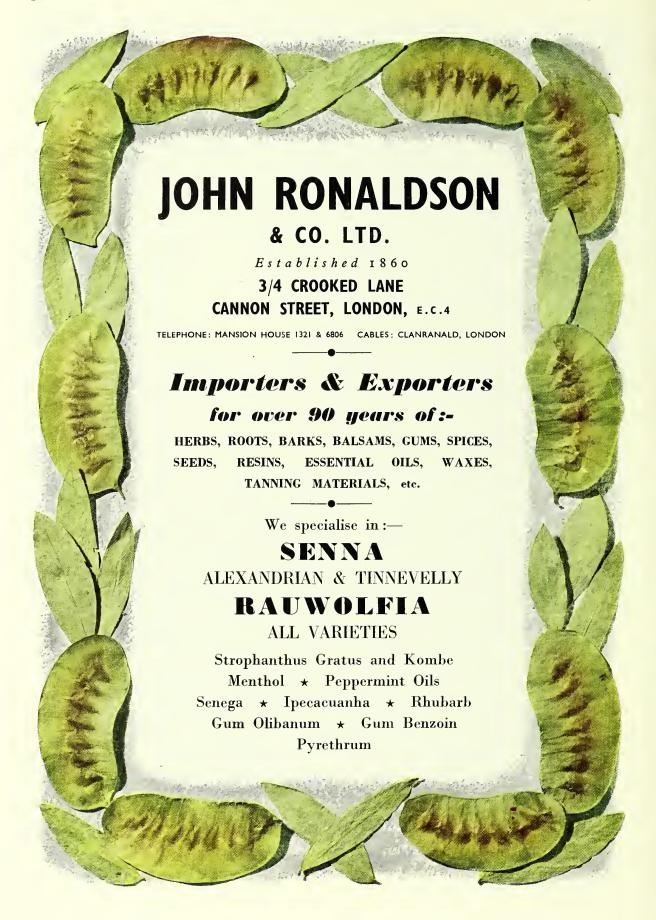
Subject to usual trade discount.

Somnos, Trade Mark

AN EFFECTIVE AND SAFE SEDATIVE AND HYPNOTIC

Literature gladly sent on request • Sharp & Dohme Ltd., Hoddesdon, Herts.







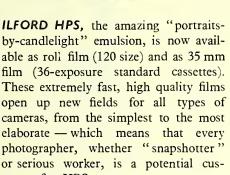
The fastest film in the world



and

Microphen

The fine grain developer to make it even faster



by-candlelight" emulsion, is now available as roll film (120 size) and as 35 mm film (36-exposure standard cassettes). These extremely fast, high quality films open up new fields for all types of cameras, from the simplest to the most elaborate - which means that every photographer, whether "snapshotter" or serious worker, is a potential customer for HPS.

ILFORD LIMITED . ILFORD . LONDON

Trade Showroom: 106/107 High Holborn, London, W.C.I. Telephone: HOLborn 3401

Phenidone-based developer, gives outstanding results with HPS films-grain as fine as that produced by conventional M.Q. borax formulæ but with reduced exposures. No roll or 35 mm camera owner will be happy until he has tried the new super-speed photography with HPS and Microphen. Stock up with both, and see how fast they sell. Microphen developer is packed in tins to

ILFORD MICROPHEN, the new

make 600 c.c. (21 oz.) working strength solution, retail price 3/6, and is also available in larger sizes.

ROLL FILM & 35mm FILM

D & P NOTE. The HPS emulsion on the new roll film has been specially modified to develop in the normal time and calls for no special treatment in trade processing plant except that it must be handled in total darkness.



DREMO.

all-rubber BRUSHES

for toilet and household use

There is nothing equal to PREMO Bath Brush for the invigorating glow of health felt after a massage. The rubber bristles in all PREMO Brushes are strong and flexible, and are kind to the most sensitive skins.

Made in a range of beautiful colours

Write for illustrated folder and price list to the manufacturers—

PREMO RUBBER CO. LTD · PETERSFIELD · HANTS

ORDER A SUPPLY NOW

of this attractive



HOLIDAY SATCHEL

5" × 7" × 9½"

THE CERTOR No. 3 Printed Counter Satchel is just what you need for the holiday months—an attractive satchel, printed in photogravure in three colours, which reflects the holiday mood. Deliveries from stock—place your order now!

Strung in 100s. Minimum quantity, 500.

PRICES PER 1,000
500 1,000 5,000 10,000 25,000
18/8 18/3 17/11 17/6 17/-

PRINTED COUNTER SATCHELS also in the Certor range.

									PRICES		
								500	1,000	5,000	10,000
CERTOR	No.	1	5"	x 7"	X	91"	 	18/4	17/10	17/4	16/9
CERTOR	No.	1B	4"	x 53"	х	7∔″	 	12/8	12/4	12/-	11/8
CERTOR	No.	2	5"	x 7"	X	9į″	 		18/9	18/6	18/3
CERTOR	No.	2B	4"	x 53"	X	7+"	 	_	13/6	13/3	13/-

These four satchels can be printed with your own name at small extra cost.

Full range of wrapping and display papers for the pharmacy.

COME TO YOUR CHEMIST Photographic Requisites

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MACDONALD'S OF MANCHESTER

MACDONALD & SON LTD · HOPE MILLS · POLLARD STREET · MANCHESTER 4

Where no barriers are known...

Medicine knows no barriers. No barriers of
caste or creed, of race or colour. In the relief
of suffering, there are few international
disputes or futile conferences, no destructive
weapons. Surgeons, doctors and nurses, the world
over, commit themselves to one battle only—
the battle to alleviate pain and distress, to succour the
injured, assist the diseased, and build up the undernourished.
Benger Laboratories are proud to provide the
supply services for this fight . . . proud of their long
record of research and development in the aid
of humanity . . . proud of the high reputation which
the company and its products hold in the medical
world—the world WITHOUT barriers.

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BENGER

Attractive Bonus Terms,

Although two generations have passed since its inception, the popularity of Woolley's

"Phenoda" remains constant. It is still recognised, particularly by dental and medical practitioners, as an extremely effective germicide when used as a mouthwash, gargle, or as a dressing for cuts, burns and bruises.

For these every-day purposes, it can be safely recommended for the home medical chest. Orders for 3 dozen of the 5 oz. size and/or 1 dozen of the 10 oz. size will be invoiced at the rate of II to the dozen.

Trade Prices: 5 oz.—13/4 per doz. plus 3/4 P.T. 10 oz.—21/- per doz. plus 5/3 P.T.

Retail Prices: (including P.T.) 10 oz. 3/3d. each 5 oz, 2 /= each



WP2

JAMES WOOLLEY, SONS & CO. LTD., Victoria Bridge

Manchester 3

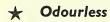
(Phenate of Soda)

Associated with J. C. ARNFIELD & SONS, STOCKPORT

For S-T-R-E-T-C-H-A-B-I-L-I-T-Y

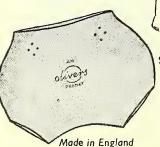
LATEX BABY PANTS

YOU CAN'T BEAT



Tissue Thin

Washable



Sizes-Medium and Large in peach and white

U.K. retail price 3/6

Available through your wholesaler or for export

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N.H.S. Prescriptions (Form E.C.10)

EPHAZONE tablets

The rational, symptomatic remedy for bronchial spasm in **ASTHMA & BRONCHITIS**

Containing in each tablet:

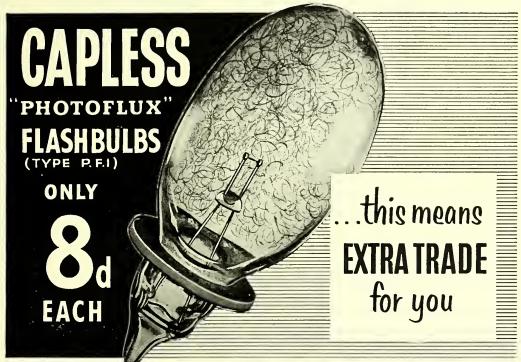
Ephedrine ½ grain - Theobromine ½ grain Phenazone I grain, Calcium gluconate d grain This preparation is not advertised to the general public.

EPHAZONE

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Revolutionary new development in flash photography



CLASS M



This is the simple adaptor, with automatic ejector device, which fits any type of flashgun. Only 1 6d.

Here's a brilliant idea from Philips which means new business for you. Philips allglass flashbulbs, with no metal cap, are the lowest-priced flashbulbs on the market! What is more — the light output of this new P.F.1 bulb is 20% greater than that of a P.F.3!

You will profit in two ways. First, the lower price will encourage existing "flash" customers to buy more and more bulbs. Secondly, it brings flash photography within the means of the casual 'snap-shotter' and opens up an entirely new market! And remember, every new 'flash' customer means all kinds of extra photographic sales. So place your orders now!

- Suitable for all modern snapshot-shutters (at 'I' setting) and at all speeds with 'M' shutters.
- Short, effective flash duration gives exposures of less than 1 100th sec.
- It gives a guide number of over 180 with high-speed pan film. Light output of 6,500 lumen/seconds.
- Has all the safety features of the regular "Photoflux" flashbulb.

PHILIPS

OPHOTOFLUX

(Made in Holland

Perfection in a flash!



PHILIPS ELECTRICAL LTD., LIGHTING DIVISION, CENTURY HOUSE, SHAFTESBURY AVENUE, LONDON, W.C.2



By Appointment Chemists ta the late King George VI

SAVORY & MOORE

Familiar enough now but 100 years ago it did not exist.

It was not until 1859 that the blue poison bottle was introduced to the World by this entry in the Royal Society's Exhibition Cata-

logue.
"Patent Bottles for the Prevention of Accidental Poisoning; Savory & Moore, 143, New Bond Street, W.

These bottles are hexagonal in shape, with deep fluting or grooves running lengthways along the bottle. To the sight and touch they instantaneously present most striking points of difference from any other bottle. Vessels of this description, made in blue glass, are intended to be used for external applications only."

Since then like so many other Savory & Moore products, the "Patent Bottle" has become a familiar household object.

DR. JENNER'S Absorbent Lozenges for Indigestion First prescribed over 150 years ago, by the eminent Physician whose name they bear. Then, as now, they were distinguished by their uncommon efficacy in subduing digestive discomfort.

MEDILAX Laxative Pellets

Comfortably persuasive and with a good effect lasting several days.

DENTURAL

Denture cleansing solution containing a special ingredient which quickly re-moves tartar and other stains.

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DISINFECTANTS & ANTISEPTICS

- CARBOLIC FLUIDS Black and White types with Co-efficients 2 to 24
- APPROVED FLUIDS (Under the Diseases of Animals Acts)
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- LYSOL B.P.
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Packed in 1, 5, 10 and 40 gallon drums

THE PRINCE REGENT TAR CO. LTD.

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Telephone: TEMPLE BAR 5801 (8 lines)

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DUNN BROTHERS' Succrs. LTD. I BOOTH STREET . MANCHESTER,

Established 81 years



New Pack . . .

New Market ...

Extra Rate of Profit!

INTRODUCTORY PLUS BONUS OFFER UNTIL JUNE 30th

Gelusil, antacid-adsorbent is being marketed in a new popular size — the Gelusil 20-tablet pack.

To introduce the new pack, William R. Warner & Co. Ltd., are making this two-parcel profit-rich bonus offer:

Parcel 'A'

12 Gelusil 20's charged as 11 cost you 15/2d. (excl. P.T.)

Your profit is 7/9d. (34%)

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36 Gelusil 20's charged as 30 cost you £2.1.3d. (excl. P.T.)

Your profit is £1.7.4d. (40%)



New Gelusil "20's"

at $2/3^{\mathbb{D}}$ each





Orders must be sent direct to William R. Warner & Co. Ltd., but if you prefer, parcels may be invoiced through your usual wholesaler. Remember, your orders must be posted on or before June 30th.

WM. R. WARNER & CO. LTD., POWER ROAD, LONDON, W.4.



MEASURE BETTER WITH A BETTER MEASURE!



INTRODUCING (1) TO THE DISPENSER

THE CLEAR

WHITE

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RESISTING

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FULLY GRADUATED

COMPREHENSIVE RANGE OF **SIZES**

GOVERNMENT STAMPED & **UNSTAMPED**



BTA!NABLE THROUGH YOUR USUAL WHOLESALE HOUSE

THE COMBINED PRODUCT OF

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131 SEVEN SISTERS ROAD LONDON, N.7

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be it labels

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THESE ARE THE SILENT, THOUGH VERY ACTIVE AMBASSADORS OF YOUR BUSINESS

They are an enigma, for though being dumb they shout most lustily at every eye that falls upon them. They are loyal, but they are candid. Loyal because they always carry your name and candid because printing cannot deceive and thus reflects in crystal clearness a quality or the lack of it. You cannot quieten their shout, but you can direct it by ensuring that your printed matter is not lacking in quality and taste. For well over seventy years we have been designing and producing print that carries the hallmark of quality and shall be very happy to place the knowledge we have acquired in those seventy years, at your disposal.

THOMAS WAIDE & SONS LTD.
KIRKSTALL HILL, LEEDS, 5



RECORD season—the objective in the current PERIHEL campaign to bring sunshine into the homes of your customers and good profit to you. Strong National advertising in important newspapers and magazines...new, hard-selling sales aids for window, counter and for local advertising... shared cost of your local advertisement space... all these will help you to sell this first-class combination lamp which gives powerful Ultra-violet and Infra-red radiation.

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As you well know, local advertising under your name and address has a powerful effect not only on your sales, but also upon your prestige. Here, then, is your chance to avail yourself of PERIHEL local advertising facilities for which we will share the cost of your space and provide you with blocks.

Be sure you take the fullest advantage of this great selling effort and order your stocks NOW.

REORGANISATION OF OUR WORKS

An energetic expansion programme which was put into effect several months ago means that the shortage of the popular ACTINA Portable Sun, due to exceptional demand, no longer exists; we can therefore offer very prompt delivery.

Ask for

FREE BLOCKS

for your own

LOCAL ADVERTISING

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the Portagle Sun

in a compact, portable unit, is ADVERTISED to the Public

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MANCHESTER GUARDIAN
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GOOD HOUSEKEEPING
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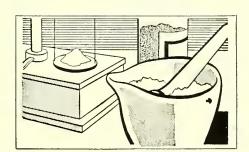
Talking of Tablets

Many and varied are the technical processes which go to make a good tablet.

B.D.H. workers combine art, crafts-manship and considerable 'know-how'. They produce tablets of a quality which justifies the choice—preferably B.D.H.

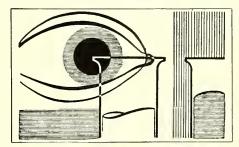
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— perfected as the result of experience, experiment and technical skill to produce the tablet to meet all tests.



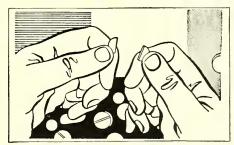
ANALYTICAL CONTROL

— at every stage from raw material to finished product.



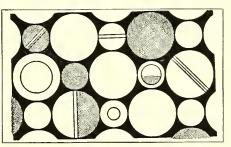
PHYSICAL CHARACTERISTICS

— hardness sufficient to withstand normal handling. Carefully calculated density to ensure easy disintegration not only when made, but after storage. Crisp, clean fracture particularly of scored tablets.



FINISH

— smooth polished surfaces with clean edges and freedom from bits and extraneous dust. Coatings even and unblemished. Colours clean, clear and uniform from batch to batch.



THE BRITISH DRUG HOUSES LTD · LONDON

TAB/T/541



Pritchards D. D. T. SPRAY-A-MIST

Profit by the demand for this handy Plastic Sprayer designed specially for use with Pritchards D.D.T. Fly Spray which is scented, refreshing, hygienic and safe. Attractively packed in Display Cartons of $\frac{1}{2}$ dozen Outfits with sales literature, etc. (Extra refills, 8 oz. 1/3d.) 3 dozen and 1 dozen Displays.

Price, 1 Sprayer and 8 oz. Bottle 3/9

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PRITCHARDS TRUSTY PRODUCTS 100 YEARS EXPERIENCE

The Fifth Sense

Since 1768, or nearly 200 years, the House of Chiris has dedicated itself to the Fifth Sense—the olfactive sense. In the development of Essential Oils, Floral Absolutes, Chemical Isolates, Synthetic Chemicals, and all of those creations and specialties which combine industrial aromatics with natural products and produce fragrance, the House of Chiris has a cherished history. Today Chiris maintains laboratories headed by experienced olfactive chemists who have available to them not only the "know how" of generations of Chiris chemists but also the research facilities of three continents and four modern laboratories located in: FRANCE - GRASSE & PARIS: GREAT BRITAIN—LONDON: BRAZIL— SAN PAULO and NEW YORK CITY. Whether Essential Oils, Isolates, or combinations thereof, are used as fragrance constituents by the perfumery, soap, cosmetics, or allied industries, we are happy to be consulted.

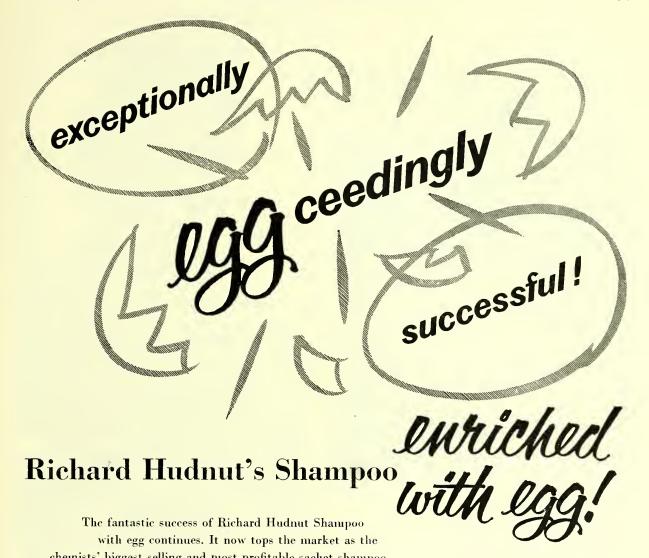
ANTOINE CHIRIS

Hanover Court. Hanover Street London, W.1
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GRASSE · PARIS · NEW YORK · SAO PAULO

Chemical Senses, page 1, Moncrief—lists senses as follows: "sight, hearing, touch, taste, smell." Note smell is listed Fifth.





chemists' biggest selling and most profitable sachet shampoo at a list price of 5/2 per dozen, retailing at 9d. Now Richard Hudnut are increasing

national publicity by 60%! With this extra advertising you will sell even more. add up still further profits!

Supplies of both sachets and flasks are ample, so you can place really large orders to make sure you won't run out of stock - and,

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This is your golden opportunity for profit

Terms: No. 9976 sachet.

1 gross — Carriage Paid

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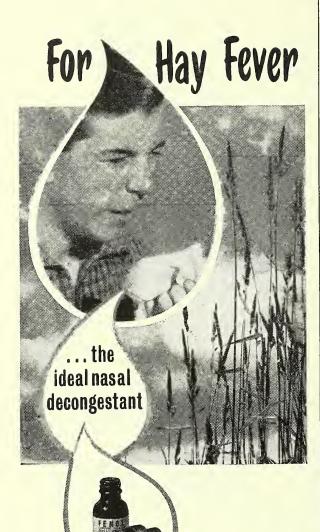
3 gross — $7\frac{10}{2}$ discount

DISPLAY EYE-CATCHING RICHARD HUDNUT EGG SHAMPOO PROMINENTLY ON YOUR COUNTER AND IN YOUR WINDOW

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"Fenox is in constant prescription demand at this time of the year"

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Independent Soap Makers since 1876



ROSS ENSIGN LIMITED, LONDON, S.W.4

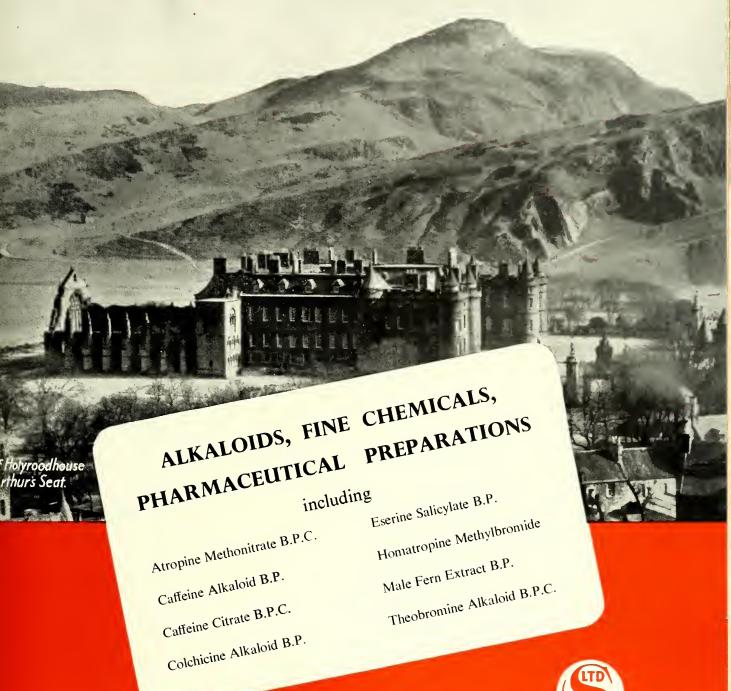


PULMO BAILLY for Broncho Pulmonary affections RHINAMID BAILLY for Oto-rhino-laryngological affections ANAXERYL BAILLY for Psoriasis and Dermatosis ANTALBY BAILLY for PYOREX BAILLY for Gingivitis and Stomatitis DIPASIC for Tuberculosis NESTOSYL for Surface anaesthesia of the skin **VELTIS** for Chapped skin **BALSAM** for Rheumatism and Sprains ETHYL CHLORIDE for Local and General anaesthesia



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Manufactured by

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NATURAL deep sea sponges are softer, kinder to the skin, more hygienic and hold three times more water than any substitute. More and more of your customers are realising this every day. That is why to display natural sponges is to SELL THEM!

CRESSWELL'S have been in the Sponge Trade for more than 150 years, and as the largest bulk buyers of Natural Sea Sponges Cresswells get THE BEST WHEN THE SPONGE CROP IS FISHED.

Varied assortments of popular priced RELIANCE Honeycomb and Fine Turkey Sponges are now available. Sponges are transparent wrapped if required. Please write for price lists and details — or for our Representative to call.

CRESSWELL BROS. SPONGES

(World Natural Sponge Suppliers Ltd.

Largest Processors and Stockists of Natural Sea Sponges in the World

International Building, Buck Street, Camden Town, London, N.W.1.

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The outstanding name



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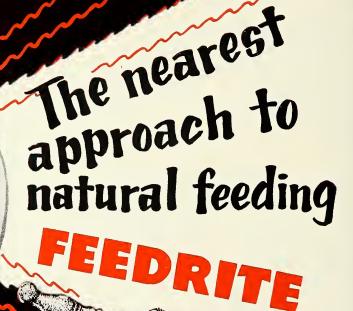
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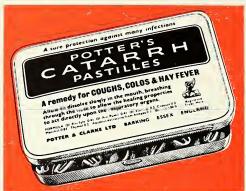
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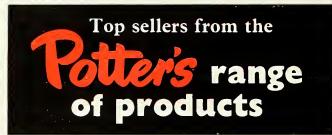
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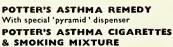


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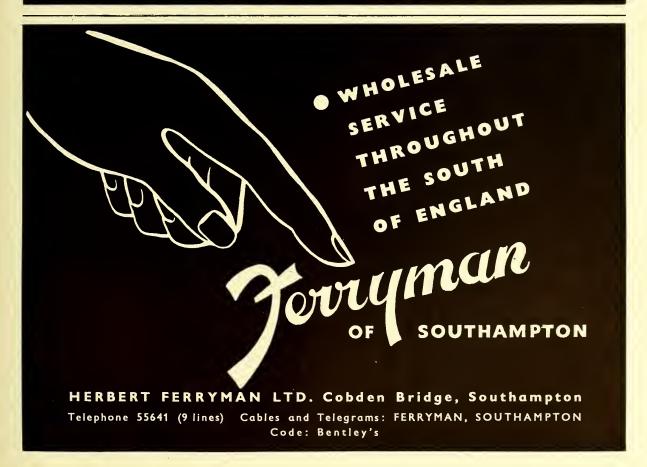
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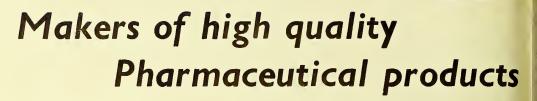
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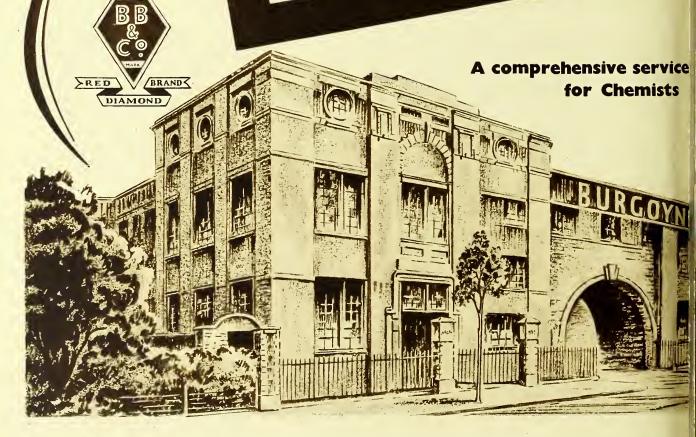
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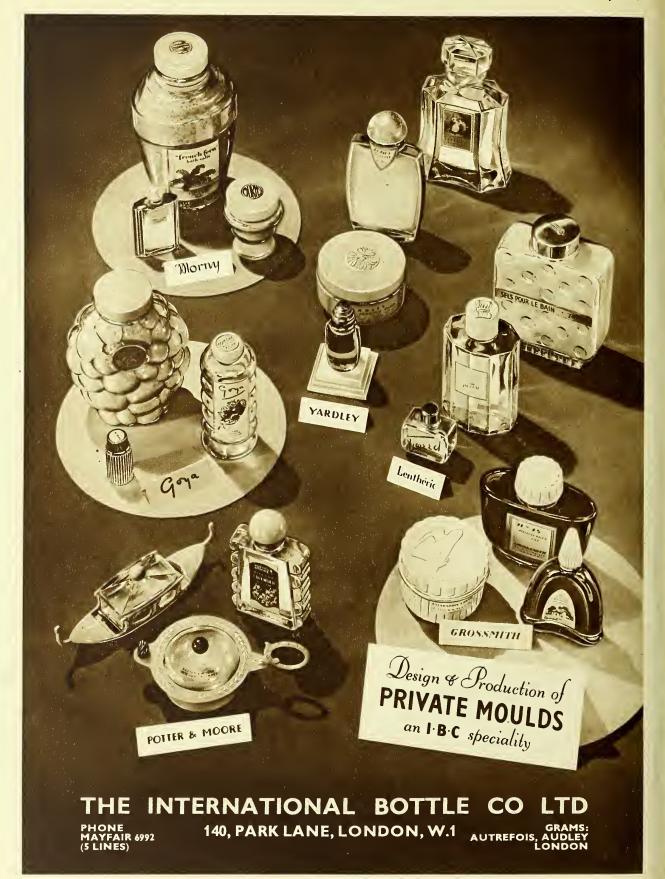
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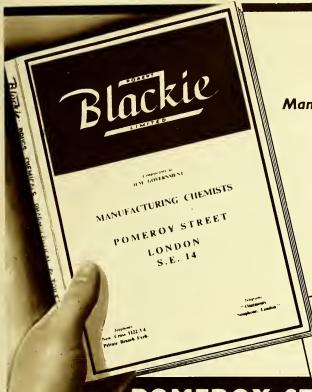
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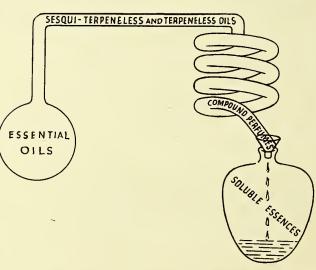
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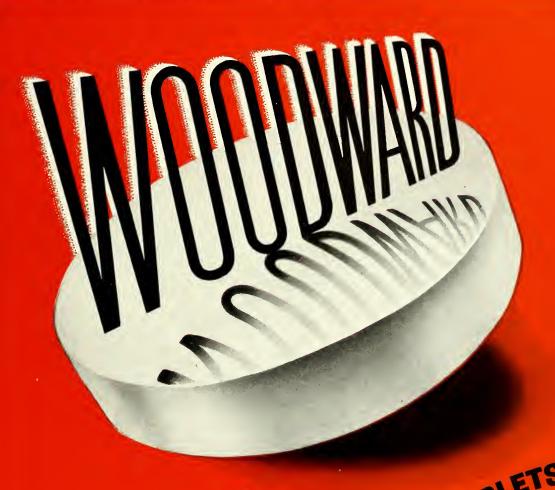
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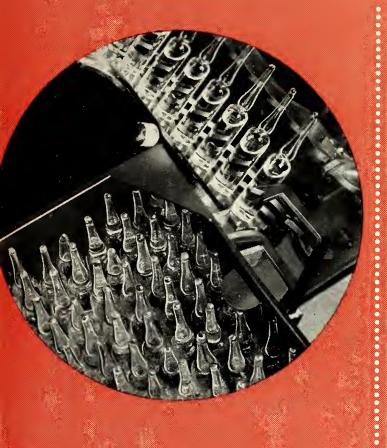
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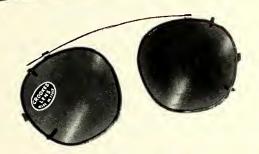
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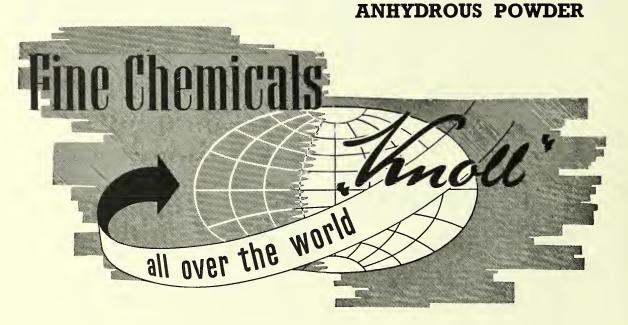
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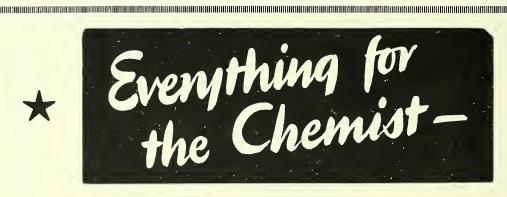
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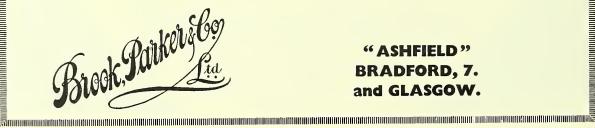
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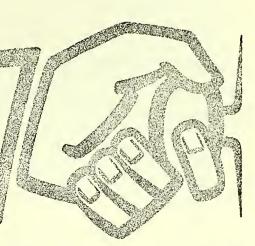
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opens the door to a vast new HOME MOVIE MARKET...

With a superb cine camera for only £28.16.4 and a companion projector at £35.0.0, G.B.-Bell & Howell bring movie-making to the millions! Think what this means to you. National advertising will spread the news throughout the country and you will be backed by first-rate promotional support. Be ready for a really BIG demand.



G.B.-BELL & HOWELL

MODEL 624 8 mm CINI
CAMERA

As easy to use as a snapshot camera · Setting dial automatically sets the lens · Picture window viewfinder gives life-size picture of scene being filmed · 3-way starting button—normal run, single frame, continuous lock run · Wide angle 10 mm f/2.3 lens · Footage counter · Ultra-simple threading · Long film run

£28.16.4 INC.

Don't lose a moment! THIS NEWS MEANS MONEY TO YOU. Get further details today from:



and the perfect companion

G.B.-BELL & HOWELL

MODEL 625 8 mm PROJECTOR

Beautifully styled · Designed for effortless operation plus unparalleled performance · Brilliant 500 watt illumination · f/1.6 colour-corrected lens · Error-proof threading · 400 ft. spool capacity · Plugs directly into AC mains.



DEPT. CD/6/55, MORTIMER HOUSE, 37-41 MORTIMER ST., LONDON, W.I. MUSEUM 5432



Our new hanging showcard

Here is our latest dispenser - showcard. Attractively printed in colour, carrying six dozen Hair Nets in cellophane envelopes beautifully printed in Blue, White and Gold.

From your Wholesaler. In case of difficulty write for nearest supplier to: SIMON, MAY & CO. LTD., NOTTINGHAM.

To Show them is to Sell the

-and to sell them is to make a regular customer! Here is a first-class product backed by a century's experience of making Nets of all kinds, and supported by attractive displays.

Stronger, finer, longer - lasting — "Will o' Wisp" Hair Nets and Slumber Nets sell on sight and repeat



rceful DISPLAY

TABLETS SUPPOSITORIES PESSARIES

All B.P., B.P.C., N.F., and many other products from stock. Customers' own materials processed. Tablets, etc., produced to customers' formula and specifications.

Wholesalers and Manufacturers are invited to submit enquiries for Home and Export markets.



MATTHEWS & WILSON LTD.

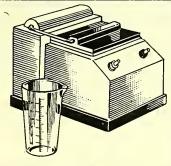
6-8, COLE STREET, LONDON, S.E.1.

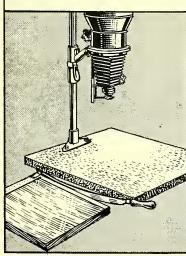
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Build up the PHOTOGRAPHIC PHOTOGRAPHIC side of your business









Stock the complete range of

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products

JOHNSON CHEMICALS

Every chemical preparation the amateur photographer is likely to need is available in conveniently sized packages, freshly compounded and with an enviable reputation for reliability.

JOHNSON ACCESSORIES

The very wide range includes Developing Tanks, Darkroom Lamps, Dishes, Printing Frames and all the usual requirements for efficient darkroom work. Tripods, Flash Guns and Filters also find a ready sale.

JOHNSON EQUIPMENT

All the larger pieces of apparatus such as Enlargers, Print Dryers and Trimmers, both for the beginner and serious amateur are listed.

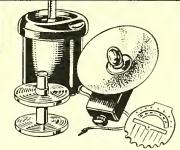
Voigtländer CAMERAS

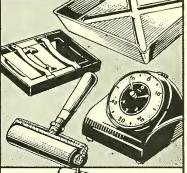
This world famous range of reasonably priced, high precision instruments is exclusively distributed to the trade by Johnsons of Hendon Ltd.

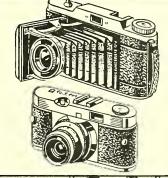
Eumig CAMERAS AND PROJECTORS

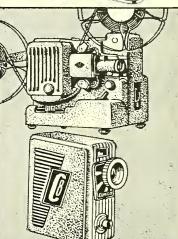
Cinematography is becoming increasingly popular and many are finding that filming is easier than taking a snapshot. Ask for details of the Eumig range of Cameras and Projectors, exclusively distributed by . . .

JOHNSONS OF HENDON LTD











DRYCOTA COMBINED TABLET MAKING

AND COMPRESSION COATING MACHINE

The "Drycota" produces coated tablets in a fraction of a second without the use of skilled operators. Materials affected by moisture can now be coated by this dry method and more control over disintegration can be made. Coloured tablets, with or without engraving or embossing can be produced in record time. No extra polishing process is required.



★ ★ SEND TODAY FOR YOUR COPY . . . "Tablet Making" by A. Little and K. A. Mitchell. 123 pages. 47 illustrations, 31 formulæ. Cloth bound. 15/- net. Post free.

MANESTY MACHINES LIMITED

Dept. 5, SPEKE, LIVERPOOL 19 Telephone: Hunts Cross 1972. Telegrams: Manesty, Liverpool 19

TABLET MACHINES • MIXERS • GRANULATORS • COATING PANS • AUTOMATIC WATER STILLS

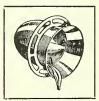
Teach Baby to drink Correctly ...

-head back without risk of choking, spluttering or mess with the

NBW

translucent. unbreakable





This new flexible and hygienic Beaker specially designed to pour at just e right speed and correct angle for inking. The covered-over top retains drinking. The covered-over top retains heat and keeps out dirt, and the special protective ring makes it easy to hold and practically spill-proof. It is designed with a push-on top, which makes the Beaker easy to fill and clean. Made in blue, pink and natural and sold in attractive gift boxes.

Wholesale 36/- per doz. Retail Price 4/6d. each. The original opaque Teacher Beaker still available. Wholesale 31/4d. per doz. Retail Price 3/11d. each.

Advertised in National Publications Manufactured by: J. L. CAPLIN, LTD.,

178-180, Homerton High St., London, E.9. Telephone: AMHerst 1396

Manufacturers of 'OAK BRAND'

FINEST QUALITY TONGUE DEPRESSORS AURAL PROBES, POSTAL BOXES, Etc.

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RECOMMENDED FOR NERVES FOR OVER 70 YEARS

Dr. NIBLETT'S NERVE **SEDATIVE**

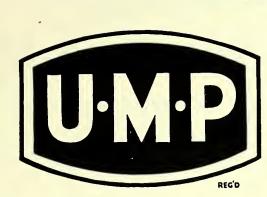
Retail price 6s. per bottle including purchase tax.

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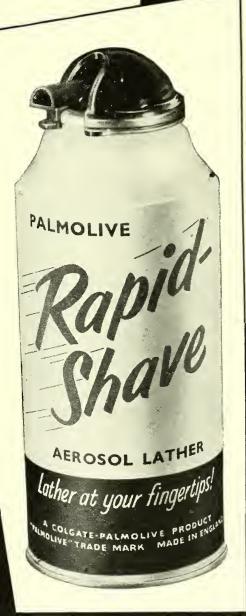


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Por Tubes and Plastics

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When your advice is sought

for an effective antacid.

Completely soluble in the gastric juice and devoid of the disadvantages accompanying carbonate medication, 'Milk of Magnesia' is the antacid gastric sedative of choice in

morning sickness, biliousness and acute indigestion.

Widely endorsed as a safe antacid laxative for children and infants from the earliest age.

Milk of Magnesia

The other Phillips' Proven Products are:-

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^eA genuinely mild evacuant ideally suited for administration to young infants, the enfeebled, sick or elderly.

'Milk of Magnesia' Tablets

Particularly valuable to the chronic or casual sufferer from dyspcpsia and acid indigestion. Pleasantly mint flavoured.

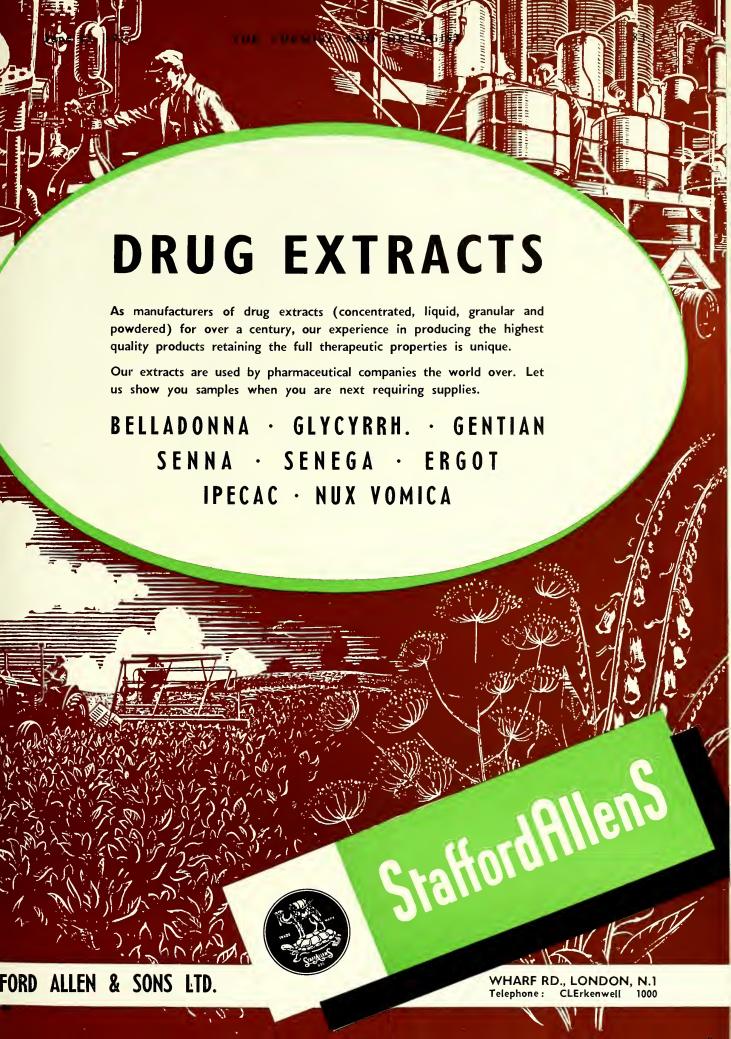
Phillips' Dental Magnesia Toothpaste

A dentifrice of proved efficacy in keeping the teeth scrupulously clean. Contains 'Milk of Magnesia' to neutralize harmful mouth acids.

California Syrup of Figs' REOD.

Compounded from the natural extracts of senna and figs. A gentle yet efficacious laxative for family use.

THE CHAS. H. PHILLIPS CHEMICAL CO. LTD., 179 ACTON VALE, LONDON, W.3.



"You'll prefer Sungard too!

These Lightweight Sunglasses ..

Fit better ...

Feel better ...

EXCLUSIVE DESIGN

in engrave

Beautifully engraved of finished Gold-plated Fran

Accurately fitted with specially selected qualit CROOKES LENSES

SPECIAL NEWS FLASH!

Now available to the Home Market... the new "SUNGARD-COMET" Anti-glare and Day-driving Glasses, with precision ground and polished lenses I Sets a new world standard in optical values... WRITE FOR DETAILS.

Sell "SUNGARD" ... and sell the Bes

actively packed in dividual Cartons

The SUNGARD' SUPER Model

Price to Ketaller 9/4d

"SUNGARD" SUPERB QUALITY will delight your customers...

increase your turnover with Full-

Profit-Margin . . . and safeguard you from risk of faulty stocks...

ORDER NOW! Through Wholesalers or direct from the actual Manufacturers!

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Price to Retailer 7/10d



A BRITISH

PRODUCT!



Oil of Peppermint distilled from plants grown on Ransom's drug farm.

The essentially progressive outlook of the Ransom organisation is well exemplified on the Company's 500-acre drug-growing farm at St. Ives, Huntingdon, where extensive areas are increasingly being assigned to research and experimental work. New methods of cultivation are constantly being investigated, new strains of medicinal plants are being developed...all with the aim of adding still more to Ransom's long experience in the drug-growing industry. This same progressive outlook is also to be found at the Company's factory and laboratories at Hitchin, where constant expansion in production capacity gives striking proof of the evergrowing demand for Ransom's vegetable drugs and galenicals at home and abroad.

EXTRACTS · TINCTURES · ESSENTIAL OILS · RESINS · CHLOROPHYLL

Actual Growers of

BELLADONNA · HENBANE · FOXGLOVE · PEPPERMINT · LAVENDER

Manufacturing Chemists, and Growers of Medicinal Plants for over a Century.

Established 1846



WILLIAM RANSOM & SON LTD.

Hitchin Hertfordshire England



the new medically recommended shampoo that eliminates dandruff

Sebbix is both an effective treatment for dandruff and an excellent general shampoo, and can be sold with complete confidence as it is medically recommended and absolutely safe to use. Its rich, penetrating lather safeguards hair health and leaves the hair soft, silky and easy to manage. Sebbix shampoo satisfies a universal need economically and offers a large market to the chemist.

safeguards family hair health



highlights hair beauty

Doctors recommend Sebbix Shampoo, which contains purified fractions equivalent to 2% coal tar and hexachlorophene 1% in a specially formulated soapless shampoo base.

Retail Price: Bottle for 6-8 good shampoos 3/2 including Purchase Tax.

Trade Price: 23/- per dozen, subject to the usual discounts.

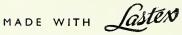
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hire

Loughborough Leicestershire



LASTEX YARN TWO-WAY STRETCH **SURGICAL** HOSE



Two-way stretch that makes things fit



increasingly prescribed by the Medical Profession as an effective treatment for the relief and prevention of

VARICOSE VEINS

and their allied and associated disorders

N.H.S.

Can be supplied against E.C.10 Forms

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ANTIPEOL

Always in steady demand

Cutaneous Ointment containing the sterile broth filtrates of the microbes causing most skin infections.

RHINO-ANTIPEOL

Prophylactic Nasal Cream; an effective remedy against infections of the naso-pharynx.

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Therapeutic Ophthalmic Ointment for the treatment of inflammatory conditions of the eye.

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MEBIOL

The Duodenal Hormone, purified, standardised and physiologically controlled for stimulating Pancreatic and Biliary Secretion.

DETENSYL

Vegeto-Polyhormonic Hypotensor. The mild and progressive treatment in conditions requiring the lowering of arterial tension.

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Polyvalent Intestinal Bacteriophage. It is the BIOLOGICAL treatment for most intestinal, para-intestinal, kidney and bladder infections.

ST. JAMES' BALM

The proven remedy for common skin troubles, and therefore the ideal general purpose ointment.

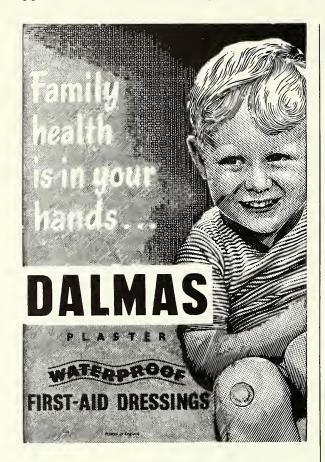
MEDICO-BIOLOGICAL LABORATORIES

LIMITED

CARGREEN ROAD, SOUTH NORWOOD, LONDON, S.E.25



PB 196



This Little Fellow ...

will bring you more business. He's making sales for DALMAS WATERPROOF DRESSINGS (the ones in the blue box). He is appearing regularly in the National Press and a delightful showcard is available on request.

Display to Sell DALMAS

Made by DALMAS LTD., LEICESTER & LONDON. Est. 1823

CRUDE DRUGS

Specialities: —

SENNA ALEXANDRIAN AND TINNEVELLY, SENEGA IPECACUANHA, RHUBARB BUCHU, DRAGONS BLOOD

ORIGINAL PACKAGES ONLY

S. A. SHEPHERD & Co Ltd 15 SEETHING LANE LONDON, E.C.3

Grams: Sashep London

Phone: Royal 4307





I am the glucose drink...

I command a faithful following of millions of people all over the country—a following which increases enormously with every passing year. When they are sick I am there to help them recover and, in health, I am the drink that helps them stay that way. People know this.

That's why they buy me regularly.

Powerful advertising backs me in the national and provincial press, in magazines, in the cinema, in radio

— advertising that reaches 98% of our adult population.

Display and stock me well.

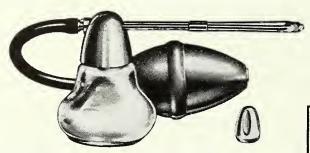
I mean business I am LUCOZADE

DEVILBISS

MEDICINAL

WITH WORLD WIDE MEDICAL APPROVAL

DeVilbiss Atomizers are approved and recommended by doctors everywhere, as meeting all medical and hygienic requirements. Designed for simple, efficient operation. Write for details.



No. 15

A practical hospital and home use atomizer for applying aqueous and oily solutions. With adjust-ATOMIZER able spray tip and detachable fluted nasal guard.



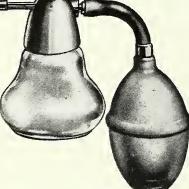
ALL-GLASS NEBULIZER No. 5 For inhalations. Gives a mist of medium fineness,



ALL-GLASS ATOMIZER No. 7 Suitable for oily or aqueous solutions.



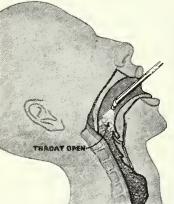
Diffuses powder evenly and perfectly Adjustable tip.



ALL-GLASS POCKET NEBULIZER No. 6. In-valuable to travellers. With a vial to hold extra solution.



For aerosol therapy. Volume of vapour can be increased by removing the stopper from the vent hole in the side.





NASAL ATOMIZER No. 20. Produces a mediumsprayforeither oily or aqueous solu-tions.



ATOMIZER No. 82 A nose and throat spray for either oily or aqueous solutions.



ATOMIZER No. 29 Gives a continuous spray, with nasal guard. For oily or aqueous solutions.

AEROGRAPH CO., LTD. (ATOMIZER DIVISION)

47 HOLBORN VIADUCT, LONDON, E.C.1 TELEPHONE: CITY 4361 (5 LINES)



Recommend it with assurance for Eye Strain, Tired Eyes, Inflammation etc.

Retails at

23^D per bottle

(Including Eye Bath)

Cost Price 17/6 per dozen Plus 4/4½ P.T.

Packed in

DISPLAY OUTERS

each containing Six Bottles . . .



Also available

ATTRACTIVE SHOWCARD



'ILOX'
EYE BATHS
are also packed
individually.
Carton retailing
at 9d. each
(6/- per doz.)

Also 'ILOX'
GOLDEN EYE OINTMENT
Retails 1/3 per tube
Costs 10/- per doz,

SEE THAT YOURS

EYE LOTION

Prepared by

B. HOOPER & CO. LTD. Chemists

6 RAILWAY PLACE, FENCHURCH STREET, LONDON, E.C.3.

ROYal 2380

Net profits multiply when you

sell

CHALO' Regd.

and

TANGO Regd.

the world's finest hair nets



Watch your sales soar when you display "Halo" and "Tango." These famous brand names enjoy a consumer confidence built up over the years, based on unvarying quality and competitive prices. Colourful packs—Hanging Cards and Display Containers holding 4 doz. nets, each in printed transparent envelope and Round Cards packed 4 doz. nets, stimulate demand and increase net profits.

* Ask your wholesaler for these fast selling lines.

Made by:

BYARD MANUFACTURING CO. LTD., NOTTINGHAM

Over 60 Years' Experience in Everything Surgical

SURCO

SURGICAL BELTS, TRUSSES & SUNDRIES

SURGICAL ELASTIC HOSIERY

Seamed, Seamless, Elastic Net, Two-way Stretch.

SURGICAL HOSIERY CO., LTD.

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Phone: NOTTINGHAM 75903

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PAINES & BYRNE LTD., PABYRN LABORATORIES, GREENFORD, MIDDX.



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carbonate forms a protective pellicle on an ulcer surface, chemically and physically

entraps hydrochloric acid and inhibits the action of pepsin.

CARNEGIES

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QUININE and SALTS

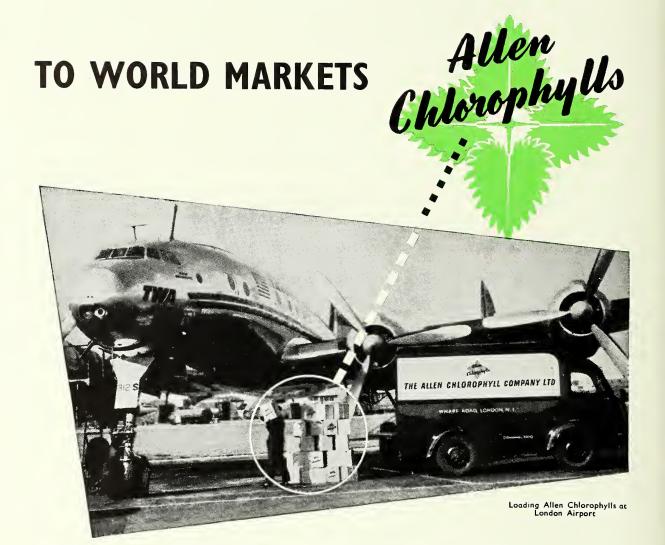
QUINIDINE and SALTS

CARNEGIES OF WELWYN LTD

Telegrams: 'CARNEGIES, WELWYN GARDEN CITY'

Telephone: WELWYN GARDEN 5001

(6 lines)



HIGHLY CONCENTRATED

HEAT STABLE

WATER-SOLUBLE CHLOROPHYLLS • MEDICINAL CHLOROPHYLLS OIL-SOLUBLE CHLOROPHYLLS

Backed by over 100 years' experience in the production of finest drug extracts—which includes 30 years of chlorophyll manufacture—we offer a wide range of reliable grades produced under

strict scientific control. We place our research facilities and long experience freely at users' disposal and welcome enquiries as to the best grades of chlorophyll for any particular application.

For TABLETS • DENTIFRICES • MOUTH WASHES • DEODORANTS • BREATH SWEETENERS DRESSINGS • SOAP COLOURING • FOOD & CONFECTIONERY COLOURING, ETC. ETC.

THE ALLEN CHLOROPHYLL COMPANY LTD.

WHARF ROAD, LONDON, N.1 Telephone: CLErkenwell 1000 Telegrams: Alclor, Nordo, London Cables: Alclor, London

TAS/CR.18

THE SEASON IS HERE!

Show FOOT AIDS Now!



Foot Aids bring quick sales and pay handsome profits at this time of the year.

Display Dr. Scholl's Aids For the Feet prominently in your window and on the counter and you will be amazed at the results. Many customers who suffer from foot troubles need more than one Dr. Scholl foot aid! Your display will show them the foot relief that can be theirs, and remind them to purchase *all* the foot aids they need!

THE BIGGEST ADVERTISING CAMPAIGN EVER UNDERTAKEN FOR FOOT AIDS, IS CREATING A CONTINUOUS DEMAND FOR THESE PROVED FAST SELLERS.

Dr Scholls

ZINO PADS

- for Corns, Callouses, Bunions, Soft Corns.
- Dr. Scholl's AIR-PILLO INSOLES.
- Dr. Scholl's BALL-O-FOOT CUSHIONS.
- Dr. Scholl's FOOT POWDER.
- Dr. Scholl's ONIXOL FOR INGROWN NAIL
- Dr. Scholl's PEDICREME.
- Dr. Scholl's BUNION REDUCER.
- Dr. Scholl's TOE FLEX.

Why not make a FOOT COMFORT CORNER in your Pharmacy?

THE SCHOLL MFG. CO. LTD., 182/204 St. John Str., London, E.C. I

The "New-Toothbrush"

with powerful Wisdom advertising



We've got to the holiday season once more—the season, amongst other things, for throwing away old toothbrushes and buying new ones.

So we're stepping up our advertising to ensure that an even higher proportion of these new toothbrushes are Wisdoms. Wisdom already accounts for over half the toothbrush market; the proportion has grown steadily and looks like going even higher still. So you see it will pay you to give extra display prominence to Wisdom in the next two months.

So display Wisdom now —— the best-

Season is here



This DAILY EXPRESS ½-page appears on June 25th

● Wisdom advertising gets off to a flying start with this ½-page in the Daily Express which is read by 11,608,000 people every day. Other large spaces in mass-circulation newspapers will be used as well. Only Wisdom supports your sales with advertising of this power, so don't waste it. Stock up now to meet the demand, and see that Wisdom is well displayed!



THE CORRECT-SHAPE TOOTHBRUSH

ADDIS LTD., BRUSHWORKS, HERTFORD

selling brand in the best-selling season!

There's a growing market for

(HEMICO

THE FERTILISER FOR INDOOR PLANTS



INDOOR PLANTS need food and in the artificial conditions of pot-life they can't get naturally the elements they need. LUXIGRO supplies that need in a convenient form. There are two types, Luxigro No. 1 for leaf-bearing and Luxigro No. 2 for flower-bearing plants.

Both types are easy to use. Luxigro comes in the form of tabletssimply press one or more about ½" into the soil of the pot. No mess, no fuss, harmless and efficient.

1/6 per packet of 30

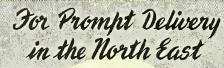


COUNTY CHEMICAL CO. LTD., SHIRLEY, BIRMINGHAM

DISTRIBUTING AGENTS TO THE CHEMIST TRADE:

DALMAS LTD., LEICESTER & LONDON





IIDDLETON & CO. LTD

MANUFACTURING CHEMISTS



Drugs, Galenicals, Tablets, Pills and Capsules. Ethical Proprietaries, Patents, Surgical Dressings and Sundries. Fine and Analytical Chemicals. Scientific Apparatus and Glassware.

We shall be pleased to send our new proprietary list on application.

TELEPHONE

BOUNDARY ROAD, MIDDLESBROUGH MIDDLESBROUGH 44361



YARDLEY

introduce



The companion product to Yardley loose powder which women will welcome for retouching. A blend of fine cream and Yardley powder, lightly compressed, which goes on as lightly as powder and clings like cream. Four shades: blonde, medium 1, medium 2, brunette.

Feather Finish will make its bow in characteristically beautiful Yardley advertising in press and magazines throughout the country from the beginning of July. Be ready with good stocks. This is a perfect product, very much in the modern mood, most attractively packed...

...you can expect a lively demand for it!

Yardley 33 Old Bond Street, London WI



cash in on

"hair consciousness"

with INECTO

Colour Crème

Now available for counter sale in all shades

Complete and ready for use
with Picture Directions.

Obtainable from your wholesaler

PRICE 3/4 PLUS P.T.
RETAILING AT 7/6

Inecto House, 27 Dover Street,
London, W.I

HYDe Park 7541 (12 lines)



"For one thing, Heinz buy their fruits and vegetables fresh from farms — and that's impossible for town-dwellers like me.

Then all the care in the world won't make my saucepans as efficient as the wonderful equipment Heinz have for keeping the goodness right in the foods.

Besides all that, every batch of Heinz Strained Foods is tested to make sure the goodness is always the same. My baby has had Heinz Strained

My baby has had Heinz Strained Foods every single day since she was three months old. They've given her the varied diet she needs—one look at her bonny little face proves that!"



Strained Foods

HS VEGETABLES SWEETS CEREAL Each 7;d.
For a free book on baby feeding write to Dept.
B41 H. J. Heinz Company Ltd., London, N.W:10



Advertising

sells the goodness of HEINZ STRAINED FOODS

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Official organ of the Pharmaceutical Society of Ireland and the Pharmaceutical Society of Northern Ireland

The weekly newspaper for pharmacy and all sections of the drug, pharmaceutical and fine chemical, cosmetic, and allied industries

Volume 162

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No. 3931

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JUNE 25, 1955

No. 3931

Restrictive Practices

A WARNING AGAINST GENERALISATIONS

A STATEMENT by the Federation of British Industries on restrictive business practices says that the Federation is convinced that serious harm could be done to productive industry, to the country's economy and therefore to the public interest if statutory action were to be based on some of the sweeping generalisations that are made on that subject.

Arrangements between firms which (3) A sound home base is needed for the

Arrangements between firms which limit competition may help to create the element of stability that enables resources to be used with the maximum efficiency and the minimum waste. They may stimulate good quality and service. They may assist in the provision of funds for new capital equipment and help to create the atmosphere of confidence which is necessary for expansion and greater efficiency. The extent of those benefits will vary from case to case: but they need to be weighed against any evils, actual or apprehended, before any restrictive practice is judged.

Discussing some of the reasons for agreements, the statement makes the

following points:-

(1) Provision must be made for the future. A level of prices that does not permit the service of capital, proper depreciation and the setting aside of resources for development lays the future under mortgage. There are cases where without some agreement with competitors firms cannot expect to earn the financial resources needed for such purposes.

(2) Regularity of output is vital if the full advantage is to be gained from modern methods of manufacture and if full use is to be made of plant, machinery and skilled labour. Since regularity of output also leads to regularity of employment, it is in the interests of all who work in the industry concerned.

(3) A sound home base is needed for the export trade. Price agreements at home can help to provide the necessary resources to bear the risks of foreign markets,

(4) Agreements between competitors can provide the necessary background of mutual confidence for co-operative research and development work and for exchange of technical information.

(5) In some industries the firms, especially if they are small, can match the corresponding bargaining power of large suppliers or buyers only if they act together.

(6) Agreements may also help to keep smaller firms alive and independent, thus maintaining desirable diversity.

(7) Allied to the constructive desire for some relative stability is often the wish that adaptation to changing economic circumstances should be conducted in an orderly and rational way. With full employment, many schemes originated in bad times have been modified or abandoned: but especially for some industries difficult trading conditions may well recur.

The distributor's margin of profit is a payment for services rendered. Such arrangements as re-sale price maintenance often encourage competition in the quality of the services rendered, in delivery and in salesmanship. Nor ean it be assumed that they result over a period in higher prices. In so far as they contribute to high and steady sales and consequent economies in dis-

tribution and manufacture, they benefit the consumer.

The statement was published in booklet form by the Federation, 21 Tothill Street, London, S.W.1 (price 1s. 3d.), on June 20.

Tuberculosis Exhibition

DRUGS SHOWN AT CONFERENCE

SEVERAL pharmaeeutical manufacturers are among the exhibitors at the fourth Commonwealth Health and Tuberculosis Conference and exhibition being held at the Royal Festival Hall, London, June 21–25 (see C. & D., April 2, p. 358). The exhibition, which was opened by Mr. James Stuart (Secretary of State for Scotland) is in the main foyer and terraces of the Royal Festival Hall. It is arranged in sections, including a colonial section, rehabilitation section, art and occupational therapy sections, a scientific sec-tion organised by some of the hospitals and hospital departments specialising in the treatment of tuberculosis, and a trade section. Pharmaceutical exhibitors in the trade section include MIL-TON ANTISEPTIC, LTD. (Miltherex, for safe disposal of T.B. sputum); PFIZER, LTD. (Vioein viomycin sulphate; Combistrep combined streptomycin and dihydrostreptomycin; Terramycin; and a new product, Terramycin S.F. (stress formula) capsules, being a combination of Terramycin with vitamins B complex, C and K); and SMITH & NEPHEW, LTD. (Therapas modified, better-tolerated form of PAS; Nupasal 213 and isoniazid; the Pycamisan range of PAS and isoniazid combined in cachete in various ctrangths; Pycazidas cachets in various strengths; Pycazide pædiatric syrup; and the company's usual range of Gypsona and Elastoplast bandages and dressings, and Jelonet dressings). X-ray films and equipment are shown by KODAK, LTD., and ILFORD, LTD., and a range of steril-





IRISH CHEMIST GOLFERS: Left, a table-top picture taken at the captain's dinner recently (see C. & D., June 18, p. 657). From right, Messrs. Brendan Smith (secretary, Irish Drug Association), "Geoff" Martin (Imperial Chemical (Pharmaceuticals), Ltd.), and P. Fullam (captain), Dr. Sinnott (captain, Rossfare Club) and Mr. A. D. Davidson, Right, Mr. Eric W. Massey (winner of the captain's prize) proposes the health of the captain.

isers including vertical type autoclaves by Sparkhall Steriliser Co.

London Docks Inquiry CHAMBER PUBLISHES INTERIM REPORT

THE interim report on the investiga-tions carried out by the London Chamber of Commerce into com-plaints of dclays suffered by import and export goods which pass through the Port of London (see C. & D., June 18, p. 656), has now been published. The Chamber's report sets out the problems and difficulties which merchants and manufacturers have to face and makes suggestions as to how they could be overcome given the goodwill and co-operation of all concerned. Among the subjects dealt with are: - Congestion of lorries at the docks, the lay-out of sheds, roadways in the dock area, clearing houses for road- and water-borne goods, the control of export cargoes, etc. In a paragraph on dock labour the report considers that the main cause of the diffi-culties in the Port is the "indiscipline and lack of responsibility of sections of dock labour. It is deplorable that the working of the Port and of the national economy should be disrupted by irresponsible strikes." The Chamber refrains from further comment on that position while a strike is in progress except to say that it considers it is most desirable that an inquiry into the operation of the National Dock Labour Scheme should be held at the earliest opportunity. More use might be made of barges and lighters in the dispatch of goods to and from ships in the Port. If traders could be sure that the cost of that method was competitive much greater use would be made of it and the present congestion of road vehicles at the docks would be relieved. It is, therefore, suggested that depôts should be set up on the riverside to act as clearing houses so that shippers would be able to send their goods in the knowledge that they would be conveyed to the appropriate ship in full barge loads at the lowest possible cost. Merchants themselves, the report says, are not entirely free from blame inasmuch as it is not uncommon for them to send down their goods to the docks during the last day or two of a ship's loading, thus causing congestion.

Import Licensing SIMPLIFIED LIST FOR STERLING IMPORTS

LICENSING arrangements for imports from the sterling area are to be simplified. Hitherto the open general licence listed the imports from the sterling area which did not require separate licences. A new licence which took effect on June 22 reverses that procedure and provides that in future all sterling area goods other than those listed in the new sterling area schedule may be imported without separate licences. The range of goods for which separate licences are not required has been slightly extended. A few minor additions and amendments have also been made to the schedules of the open general licence relating to imports from other countries. A new notice to importers (No. 740) dated June 22, 1955, has been issued to supersede No. 635;

copies are obtainable from the Board of Trade, Import Licensing Branch, 43 Marsham Street, London, S.W.1.

SCOTTISH NEWS More Prescriptions

EFFECT OF LEVY WORN OFF

THE restraining effect of the shilling levy on prescriptions has now completely worn off, says the report for 1954-55 of the Lothians and Peebles Executive Council, commenting on the rise in the number of National Health Service prescriptions issued in the area. The number rose by 24,570, from 574,271 in 1953-54, to 598,841 in 1954-55. Taking those figures for the one county alone, the burden on the National Health Service was coming to the point where some further revision of the situation was inevitable.

Prescribing Costs

LETTER TO GLASGOW DOCTORS

A LETTER has been sent to all Glasgow doctors with a statement of their prescribing costs for April 1954 to enable them to compare their figures with the national average. That is the second time in six months that doctors have received a warning about the cost of their prescriptions. The letter states: "If your costs are appreciably higher [than the national average] then your earnest consideration should be given to a close examination of your prescribing habits."

IRISH NEWS

Associates' Section

MEETING OF COMMITTEE

AT the June meeting of the committee of the Associates' Section of the Ulster Chemists' Association, Mr. G. E. McIlhagger (chairman) presiding, the following applications for associateship were approved: -Assistants, Misses D. G. Grimley, B. M. R. Donnelly and A. E. Rooney; Apprentices, Miss M. McGalliard, Mr. R. Rosbotham. THE SECRETARY reported that there had only been one applicant for the grant of £10 towards attendance at the British Pharmaceutical Conference, and the subcommittee appointed for the purpose agreed that the grant should be passed to the applicant. Gifts from the social subcommittee and the Associates' committee were presented to Miss Bradley (secretary of the social sub-committee) and to Mr. T. O'Rourke to mark their forthcoming marriage. Tributes to their work for pharmacy and best wishes for their future happiness were expressed by Messrs, G. E. McIlhagger, G. P. Taylor (convener of the social subcommittee) and E. G. Mackle. An emergency committee was appointed to act during the summer.

BUS RUN TO NEWCASTLE

THE social subcommittee of the Associates' Section of the Ulster Chemists' Association organised a bus run to Newcastle on June 8. Guests included Mr. B. Deeny (secretary, East Down Chemists' Association), who conducted the party on a tour of the cathedral in Downpatrick. They then continued to Newcastle for high tea and an informal dance concluded the evening.

OVERSEAS NEWS

Pond-weed Menace

THE Government of Ceylon is understood to be considering the expenditure of £75,000 a year for the next five years on a weed-killer to eradicate salvinia, a rapidly spreading water weed that is seriously threatening her agriculture, and may also be a menace to public health by causing stagnation of water and forming breeding grounds for insects. Salvinia was taken into Ceylon for botanical studies in 1939. Discarded portions survived and formed new plants in the waterways. Within thirteen years the weed has spread over at least 25,000 acres, choking up paddy



fields, irrigation canals, streams, reservoirs. A free-floating fern with no true roots, mature salvinia is a mass of hairy leaves on fragile stems. Young leaves and buds are easily detached from the main plants, rapidly growing to form dense areas of foliage. In other parts of the world where it occurs, salvinia is presumed to be kept in control by natural competition but those competitive plants do not appear to exist in Ceylon. Salvinia is resistant to most herbicides but one formulated with petroleum has been successful. Shipments of salvinia weed-killer manufactured by Shell Petroleum Co., Ltd., at Shell Haven, Essex, have been sent to Ceylon. The weed-killer consists of pentachlorophenol plus wetting agents in an oil emulsion.

UNITED STATES

Report on Salk Vaccine

A PUBLIC health service report on the Salk poliomyelitis vaccine, issued in Washington on June 10, said that the service had raised the minimum safety standards for it and made them mandatory. The report followed a five-week investigation after more than 100 people inoculated with the vaccine had contracted the disease. It said that the vaccine was composed of three types of viruses, mixed together after they had been inactivated or killed, but in some cases live viruses were found in the final mixture after tests of the three components had shown none. That was revealed when the health service made a study of the manufacturers' records. Those instances had not been reported to the authorities because the manufacturers had not asked for clearance of faulty lots.

NEWS IN BRIEF

AT Cambridge University on June 9 the honorary degree of Sc.D. was conferred on Sir Cyril Hinshelwood, F.R.S. (professor of chemistry, Oxford University).

A PRESS conference to publicise the British Standard "quick," "medium" and "stubby" thermometers (see C. & D., January 9, 1954, p. 25), was held in London on June 21.

THE second smash-and-grab raid in eight weeks was made on the premises of Harold Lomax, Ltd., chemists, Liverpool, on June 14; a grille prevented the premises from being entered, and little of value was taken.

PRODUCTION has started in the temporary installation of the Burma Pharmaceutical Industry (B.P.I.), of which Evans Medical Supplies, Ltd., were appointed managing agents in October 1953 (see *C. & D.*, October 24, 1953, p. 409).

STATUTORY Instrument, 1955, No. 841, exempts sulphur wastes and residues in which the uncombined sulphur constituent is not less than 70 per cent. of the dry weight from the general ad valorem duty of 10 per cent. from June 20.

At the annual meeting of the Somerset Branch of the Pharmaceutical Society, held recently, THE SECRETARY (Mr. J. S. Clarke) said that, owing to lack of time, and also the continued apathy of members of the Branch, he was unable to continue in office.

SPORT

Golf.—ULSTER CHEMISTS' GOLFING ASSOLIATION, McMullan cup match at Royal Belfast golf club on June 8. Cup won by H. Marshall (4), runner-up, J. Morrison (18), first bogey, D. Coffey, second, H. Reynolds, McCutcheon trophy won by H. Caren (67 net), runner-up, C. J. Hall (71), Major F. A. McMullan presented the prizes,

SOUTH LONDON AND SURREY PHARMACISTS' GOLFING SOJETY, Stableford competition at Purley Downs golf club on June 15, for the Ucal yearly tankard, presented by Mr. B. J. Browning (director), Winner, A. W. Bennett, 35½ points; runner-up, C. J. Martin, 34 points, Visitors' prize, Winner, S. Webb, 36½ points.

LIVERPOOL CHEMISTS' GOLFING SOCIETY, at

LIVERPOOL CHEMISTS' GOLFING SOCIETY, at Childwall golf club, on June 15, Allenburys cup and prize won by J. J. Carroll, 70; Sharp & Dohme prize won by G. Molyneux, 70; Johnson & Johnson prize won by W. E. Humphreys, 70.

Athletics. — Kemball, Bishop & Co., Ltd.. chemical manufacturers, Seventh annual sports fête, Woodford Bridge, Essex, June 18. RESULTS: Inter-division Challenge Shield retained by factory 12 with lead of 19 points over the research, works and general laboratorice, "Boat" race won by factory 12; 440 yds, Relay, factory 12; Tug-of-war, general office and canteen staff; 880 yds, (Open Handicap, Men), Long Jump, and 100 yds, (Open Handicap, Men), T. Leach; Veterans' (Employees, Men), F. Dennington; Sack (Ladies), K. Jenkins; Sack (Men), M. Diss; Throwing the Cricket Ball (Men), V. Batrs; 100 yds, (Open Handicap, Ladies), Mrs. Hall; Three-legged (Open, Mixed Couples), Miss Ashford and Mr. Elkin; Obstacle (Open, Men), J. Effery; 220 yds, (Employees, Men), D. Chamberlain; Potato (Open, Ladies), Mrs. Barnes; Potato (Open, Men), R. Legg; Skipping (Open, Men), J. Faffery; 220 yds, (Employees, Men), D. Chamberlain; Potato (Open, Ladies), Mrs. Barnes; Potato (Open, Men), R. Legg; Skipping (Open, Men), S. Parish; Fashion Parade (Open, Mixed Couples), S. Ashford and L. Miall; Novelty Even (Open, Mixed Couples), Miss Heron and J. Effery, Prizes were presented by Mrs. H. F. Kemball.

TOPICAL REFLECTIONS

By Xrayser

History of Pharmacy

It is heartening to know (p. 670) that the History of Pharmacy Committee has been able to secure the co-operation of no fewer than sixtyseven branches of the Society in its praiseworthy task of gathering information which will ultimately provide a broad picture of our heritage. Local correspondents have an unrivalled opportunity of filling in the blanks, which a national committee could not hope to do. It will involve the correspondents in a great deal of research, which might seem tedious to some, but it may be assumed that those who have been chosen, or who have volunteered, are people with a liking for the subject, and the deeper they delve the greater will be their reward. Much of our earlier history is closely bound up with that of medicine, and where there are a medical faculty and a library a vast amount of material is at hand. While much of it may have already yielded valuable information to the medical profession. the approach of the pharmacist is rather different. In a task of this kind there is sometimes a tendency to try to get as far back as possible, but the fact should never be lost sight of that what we do today becomes history for future generations. For that reason, everything should be done to preserve existing records, even if they are of this century. I have already made reference to the collection of old prescription books recently reported by the Scottish Department. Every opportunity should be taken of acquiring a good representative selection of these, all over the country, for such volumes have already become history books. The decision to hold a meeting of the correspondents is a good one. A pooling of ideas of such a group should lead to a quickening of interest over the country as a whole. Branches may consider inviting their own correspondent to give a paper covering the results of his research when sufficient material accumulates.

Dental Health

The joint efforts of the Ministries of Health and Education to promote dental health in the young should be given every encouragement. In inviting the co-operation of local health authorities to stimulate care of the teeth in the very young, the Ministries are clearly aware of the importance of starting a good habit at the earliest stage. Much can be done towards educating the public through the health visitors, as well as in child welfare centres and nursery schools. Though the co-operation of the pharmacist does not appear to have been invited, he will inevitably come into the picture, and a live local authority may decide to ask for help in the display of the material which has been published. It seems unfortunate that many manufacturers of tooth-pastes have, by their sales policy, removed the health aspect of their product by indiscriminate selling. Time was when the public thought of tooth-paste in terms of the pharmacy, which was after all its ancestral home. But the relentless drive for "sales" has reduced many tooth-pastes from the level of a health product to that of a cosmetic. Balance-sheets and graphs may show good business results, but prestige has been lost.

A Good Shillingsworth

In answering a question relating to the shilling charge, in which his questioner expressed the opinion that the time had come when the Minister should consider abolishing it, Mr. Iain Macleod said that while the charges might be irritating, they brought in £7 millions in a year, "and the amount might be more if the deterrent effect were abolished." In asking the question, Mr. Hale asked the Minister to bear in mind the trouble to doctors and the trouble to patients. I feel certain that the sympathy of pharmacists will go out to the troubled. But what, precisely, is to be taken from the Minister's reply? If he abolished the deterrent effect, how could he expect to get more than £7 millions? And if charges are imposed for the purpose of acting as a deterrent, is it fair to complain if they do? There are times when one would like to be in a position to put a supplementary question.

COMPANY NEWS

Previous year's figures in parentheses

THOMAS McMULLAN & CO., LTD., Belfast.—Mr. Fred R. Moore, J.P. (managing director) has been appointed chairman.

A. BOAKE ROBERTS & CO. (HOLDINGS), LTD. — A final dividend of 11 per cent. ($7\frac{1}{2}$ per cent.), making 15 per cent. for the year ended March 31 (10 per cent.), is recommended. Group trading profit is £425,048 (£209,058); U.K. taxation, £223,836 (£123,936).

BEECHAM GROUP, LTD. — The preference share exchange offers made by the Group to preference holders of Beecham Maclean, Ltd., Maclean, Ltd., and C. & E. Morton, Ltd. (see C. & D., May 7, p. 498), have become unconditional. Acceptances so far represent 80·99 per cent., 84·54 per cent., and 93·60 per cent. of the respective preference capitals. The closing date has been extended from June 20 to July 11.

UNICHEM, LTD.—The annual report by the chairman, Mr. D. A. Rees, F.P.S., showed continued progress during the year, with membership now over 1,000. A dividend of 8 per cent. was declared on the ordinary shares (same) and the sum of £1,950 (£500) was allocated to general reserve and £500 (same) to national advertising reserve, £1,371 being carried forward (£1,306). The retiring director, Mr. C. H. Foster, M.P.S., was re-elected.

IMPERIAL CHEMICAL INDUSTRIES, LTD. — Turning to current trading at the conclusion of his address to the annual meeting on June 16, the chairman (Dr. Alexander Fleck) said that in 1955 the company's general level of both home and export sales is so far well above the corresponding period of last year. The board intend to issue a statement on the estimated trading results of the company every six months.

BOOTS PURE DRUG CO., LTD.
—The annual statement by the chairman, Mr. J. P. Savage, states that, in the past financial year, 340 million customers were served in the company's shops (an increase of 17 millions over the previous year). The home wholesale and the export divisions both showed an increase in sales of 25 per cent. In partnership with a South African company a new company has been formed which is producing insulin and diosgenin. The latter is already arriving in Great Britain for the manufacture of cortisone and hydrocortisone.

LAPORTE INDUSTRIES, LTD. — Discussing the importance of sulphuric acid to one of its subsidiary companies the chairman (Mr. L. P. O'Brien) in his annual statement forecasts that despite increased consumption of the acid in the United Kingdom, new manufacturing capacity may result temporarily in a new phase of supply exceeding demand. The trading surplus of Laporte Chemicals, Ltd., is not much increased over that of the previous year and no improvement is expected during the current year because extensive additions being made to the hydrogen peroxide plants will not be completed before January 1956.

IN PARLIAMENT

MR. IAIN MACLEOD (Minister of Health) told MR. A. BLENKINSOP, in a written answer on June 17, that since May 1953, of the seventy-three most expensive and frequently prescribed proprietary preparations, twenty-nine had been reduced in price (many by between 20 per cent. and 50 per cent.). Some of those reductions reflected in reductions in the basic drug part reductions in the basic drug prices. In addition, special provisional reductions (see *C. & D.*, February 5, p. 136) ranging up to 20 per cent., were recently arranged with manufacturers in the prices of nineteen proprietary preparations. During the same period, the prices of certain important basic drugs and their corresponding products drugs and their corresponding products had been reduced, some of them several times. Those voluntary reductions included some recent ones (since June 1954), ranging up to 20 per cent., in the prices of penicillin, strepto-mycin, chloramphenicol, hormone and vitamin products. There had been no recent reductions in the prices of the main types of surgical dressings used in the National Health Service.

Poliomyelitis Vaccine

MR. IAIN MACLEOD (Minister of Health) told MR. D. W. WADE, in a written answer on June 17, that a member of the staff of the Medical Research Council had just returned from a visit to the United States where he had been studying the latest developments in the use of poliomyelitis vaccine. No explanation for the Cutter vaccine incident had yet been found, but it was possible that certain batches contained live virus. He understood that the safety tests to be applied to the vaccine in the United States had been greatly multiplied, including a closer control of manufacturing processes. Pending the introduction and application of similar measures in Britain, the Medical Research Council had postponed, probably until the late autumn, the start of any field trials with the vaccine.

MR. MACLEOD told MR. A. BLENKINSOP on June 20 that he thought that only one firm was now actively producing the vaccine in Britain.

Truss Firm's Withdrawal from N.H.S.

MR. IAIN MACLEOD (Minister of Health) told MR. F. WILLEY, on June 20, that he had received no direct communication from the Brooks Appliance Co., Ltd. (see C. & D., June 18, p. 660). There were 150 firms which managed, under the Drug Tariff, to provide perfectly adequate trusses for the National Health Service. Those trusses were in no way inferior. If the Brooks Appliance Co. wanted to put a case to him on the matter it was for it to do so.

BUSINESS CHANGES

F. W. BALL, LTD., manufacturing chemists, have removed to 1 North Road, London, N.7.

MR. WILLIAM C. MINIHAN, M.P.S.I., has opened a pharmacy opposite the head post office in Cork, and a pharmacy has also been opened at Hacketstown, co. Carlow, Eire.

MARRIAGE

O'DONOGHUE—MARTIN.—At the church of the Holy Name, Dublin, recently, Michael J. O'Donoghue, L.P.S.I., Castletown Bere, co. Cork, to Gloria P. Martin, Ranelagh, Dublin.

DEATHS

BAILES.—At his home, Ellercroft, Grenfell Terrace, Bradford Moor, Bradford, Yorks, on June 16, Mr. Arthur Thomas Bailes, M.P.S., aged eighty. Mr. Bailes was secretary of Bradford Pharmaceutical Committee for over thirty years. He was manager of a Bradford pharmacy for twenty years before starting business on his own account in Thornbury thirty-four years ago. Although retired for nine years, Mr. Bailes continued actively to work on behalf of pharmacists in Bradford and was attending committee meetings up to only a few weeks ago. He is survived by his widow, a son and a daughter.

OPIE.—On June 4, Mr. Arthur Thomas Opie, M.P.S., 38 Market Place, Penzance, Cornwall, aged seventy-three. Mr. Opie was a former chairman of the Cornwall Branches of the Pharmaceutical Society and the National Pharmaceutical Union and had been a member of the Cornwall Pharmaceutical Committee since the early days of National Health Insurance. He was for many years a county councillor and lately an alderman, and was one of the county council representatives on the Cornwall Executive Council. He was a county magistrate.

Council. He was a county magistrate. Mr. A. C. Cannon writes: A short announcement of the passing of Mr. Arthur T. Opie hardly does credit to the life and work of one of Cornwall's leading chemists. He was a regular attender of pharmaceutical meetings until illness prevented him, and his very definite opinions did not always agree with the "powers that be." He was a prolific trainer of apprentices. Many of the leading chemists in Cornwall as well as other parts of the country owe their success to the early training of "the Captain" as he was called by his apprentices.

PLIMMER.—In hospital on June 18, Professor Robert Henry Aders Plimmer, D.Sc., 18 Langside Avenue, London, S.W.15, aged seventy-eight. Dr. Plimmer was emcritus professor of chemistry in the University of London. He was a leading authority on protein chemistry and a pioneer in the field of vitamins and nutritional biochemistry. He was a former head of the biochemical department of the Rowett Institute of Research in Animal Nutrition at Aberdeen. In 1922 he was appointed to the chair of medical chemistry at St. Thomas's Hospital Medical School in the University of London. He was made emeritus professor in 1944. After his retirement he became a member of the biochemistry department at the Post-graduate Medical School, Hammersmith, where he continued actively almost until his death. He was a founder member of the Biochemical Society and its first secretary and treasurer in 1911–12 and honorary secretary from 1913 to 1919. His published works included Organic and Bio-chemistry.

TRADE NOTES

Discontinued.—C. L. Bencard, Ltd., Minerva Road, London, N.W.10, have discontinued the manufacture of penicillin Gelatros; stocks are exhausted.

Holiday Offer.—A holiday offer of two 10½d. Lux soap for 1s. 6d. is being made by Lever Bros., Ltd., Port Sunlight. [Corrected note.]

Agents in Devon and Cornwall. — Slimaid Products, Ltd., 36 London Street, Southport, Lancs, have appointed E. Tracy Ware & Son, wholesalers, 21 Lower King's Avenue, Exeter, Devon, the sole agents of their Slimso products in Devon and Cornwall.

Prices Increased. — In common with all other pastilles, the prices of Meggeson's glycerin and blackcurrant pastilles and glycerin, lemon and honey pastilles are increased in price. The increases took place after the announcement of Meggeson & Co., Ltd., 11 Garrison Lane, Chessington, Surrey, on another page of this issue was printed.

Removal During Holiday. — Fred Hurtley & Son, Ltd., manufacturers of Litesome supporters and elastic goods, are removing during the local Keighley holiday, July 22 to August 8, to a new two-story factory in Keighley. Messrs. Hurtley hope to be in full operation from the recommencement of business on August 8. During the holiday a skeleton staff will be on duty for urgent orders. All orders and inquiries should be sent through Fassett & Johnson, Ltd., 86 Clerkenwell Road, London, E.C.1, the sole distributors to retail chemists.

Bonus Offers

M. & R. NORTON, LTD., 9 Park Hill, London, S.W.4. Neutrogena soap. Three tablets free with minimum three-doz. order.

COUNTY LABORATORIES, LTD., Honeypot Lane, Stanmore, Middlesex. Amami lotion shampoo. Three doz. sachets for price of two doz. up to six doz. maximum. Between June 1 and July 31.

James Woolley, Sons & Co., Ltd., Victoria Bridge, Manchester, 3. Phenoda (phenate of soda) solution. Orders for three doz. 5-oz. and/or one doz. 10-oz. size invoiced at eleven to doz.

RACASAN, LTD., Cromwell Road, Ellesmere Port, Ches. Additional 5 per cent. on 1 doz. Racalon antiseptic cream or antiseptic rinse or ½ doz. of both; $7\frac{1}{2}$ per cent. on 2 doz. cream or rinse or 1 doz. of both.

John Wyeth & Bro., Ltd., Clifton House, Euston Road, London, N.W.1. Aludrox tablets. During July. One free counter pack with each complete doz. ordered, either direct or from a wholesaler. Plastic counter stand also supplied on request. (Offer does not apply to Aludrox amphoteric gel or Aludrox tablets, 13-gr., 60's or 500's.)

Holiday and Other Closings

C. J. Hewlett & Son, Ltd., King George's Avenue, Watford, Herts. Warehouse closed for stocktaking during week commencing July 4. Urgent orders only executed.

NEW PRODUCTS AND PACKS

Eye Ointment. — Roche Products, 1.td., 15 Manchester Square, London, W.1 (Welbeck 5566), announce the introduction of Gantrisin eye ointment, which is available in a 5-gm. tube. It is subject to Schedule I of the poisons regulations.

Non-barbituric Hypnotic. — Ciba Laboratories, Ltd., Horsham, Sussex, have launched a new speciality, Doriden, ∝-phenyl-α-ethyl glutarimide, a non-barbiturate hypnotic. Doriden, which acts rapidly and has a medium duration of effect, is indicated in a majority of cases of insomnia. Doriden is packed in bottles of twenty-five, 100 and 500 0·25-gm. tablets.

A New Cortisone Derivative.—Roussel Laboratories, Ltd., 847 Harrow Road, London, N.W.10, announce the introduction of Decortisyl (Δ¹-dehydrocortisone, also known as metacortandricin). Presented in 5-mgm. tablets, this new derivative of cortisone is characterised by maximal anti-inflammatory and antirheumatic effects with minimal sodium retention. Initial quantities are at the disposal of research centres.

Chlorpromazine Suppositories.—Pharmaceutical Specialities (May & Baker), Ltd., Dagenham, Essex, have introduced a new preparation of Largactil suppositories. Rectal administration is suited to cases of intractable nausea and vomiting, when injection is undesirable or impracticable, conditions of the upper respiratory tract which interfere with swallowing, and for patients unable or unwilling to swallow either tablets or syrup. The 100-mgm. suppositories are supplied in box of five. Largactil suppositories fall within Part I of the Poisons List and Schedules I and IV to the Poisons Rules.

A Lavender Range.—J. & E. Atkinson, Ltd., 24 Old Bond Street, London, W.1, newly present English laven-

der throughout a complete lavender fragrance range: English lavender; English lavender talcum, bath cubes, soap, bath dusting powder and shaving cream.

Plastic Lemon.—Edward Hack, Ltd., Lion House, Red Lion Street, London, W.C.1, are issuing plastic "lemons" each containing 2 oz. pure filtered



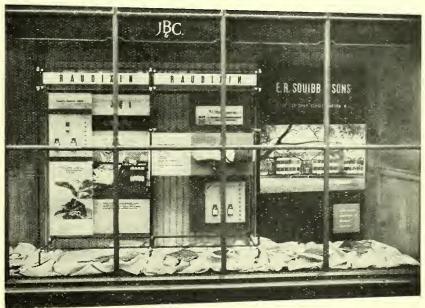
The Princess Royal receives a Hax "lemon" at an exhibition.

Sicilian lemon juice (plus preservative), which is released for use by squeezing the "lemon." The "lemons" are issued 1 doz. in plastic bag, six in outer.

Single-lather Sachet Shampoo. — County Laboratories, Ltd., Honeypot Lane, Stanmore, Middlesex, arc marketing a new Amami single-lather lotion shampoo in "one-shot" sachet.

Creamy Powder Compact.—Yardley & Co., Ltd., 33 Old Bond Street, London, W.1, are marketing a new product, Feather Finish, a "creamy powder compact" in blonde, medium 1, medium 2 and brunette shades.

Lipstick and Powder. — Tokalon, Ltd., 450 Basingstoke Road, Reading, Berks, have added to their range Mirabelle lipstick, a "vivid, true red," lipstick; and Mirabelle powder, a "soft, flattering" powder shade.



PHARMACOLOGY IN A PHARMACY WINDOW: Section of an exhibit in the window of John Bell & Croyden, 50 Wigmore Street, London, W.1, illustrating the pharmacology of Raudixin and Graneodin ointment, a speciality of E. R. Squibb & Sons, Ltd., 17 Old Bond Street, London, W.1.

PHARMACEUTICAL SOCIETY OF IRELAND

Monthly Meeting of Council

A MEETING of the Council of the Pharmaceutical Society of Ireland was held in Dublin on June 14, Mr. M. Costello (president) in the chair. Also present were Messrs. P. F. McGrath (vice-president), H. P. Corrigan (treasurer), J. Gleeson, G. C. O'Neill, T. B. O'Sullivan, A. A. Toher, J. A. O'Rourke, F. Loughman, J. J. O'Regan, D. J. Kennelly, M. Power, F. J. Robinson, T. C. Scott and P. Fullam. Mr. James G. Coleman (the registrar) was in attendance. Apologies for absence were received from Messrs. E. J. MacSweeny, J. P. Kissane, C. J. Cremen and P. A. Brady.

Discussion on Optics Bill

THE REGISTRAR reported that since the previous Council meeting he had attended a meeting at the Department of Health to represent pharmaceutical interests in connection with the forthcoming legislation dealing with optics. In addition to people holding diplomas the original Bill provided that those practising optics for ten years could get on the proposed register. He suggested that the term should be cut to five years, and that a person who could produce evidence of having done a substantial amount of work in optics should be put on the register. He proposed that persons who had recently entered pharmacy, and who were doing an optical business, should be given an opportunity of demonstrating their skill before the Board set up under the Bill and, if they failed to qualify as opticians, should be put on a register for dispensing optical prescriptions. Pharmacists in that category should be given an opportunity of taking an examination six months after the Act came into force, and if they failed they should have an opportunity of a second chance in, say, twelve months' time. The idea was that after two years the line should be drawn, and any future person coming in would have to give proof of ability.

MR. LOUGHMAN said that he did not think there was any great urgency for a Bill of that kind, which, if passed, might impose a very severe strain on the ordinary people should they have to pay a fee of two guineas to have their eyes tested by a registered practitioner. The Bill took away from the chemist something he had enjoyed from time immemorial, and closed the door on a very profitable side-line. In his view eighty per cent. of the sighttesting was as simple as measuring for a suit of clothes, and to charge a two-guinea fee under the Bill would be "a racket against the country's poor." He agreed that there were abuses at present, and that there were people who advertised that they had wonderful sight-testing services for which they charged big sums and gave poor value. His main reason for disliking the measure was that people were going to be exploited under it, and that it shut a door for chemists which would not be opened again. They were losing all and getting nothing new.

THE PRESIDENT said that while it was not a matter that concerned the city chemists very much it did affect chemists like Mr. Loughman who had been carrying on an optical business for a number of years in the provinces. It also affected those who accepted optical prescriptions or contracted to supply local authorities with spectacles.

THE REGISTRAR said that the Bill was definitely going through and that there would be two registers, one for sight-testing practitioners who could give prescriptions or make up their own glasses, and the second for people who supplied glasses only on prescription. For those who had substantial experience in optics and sight-testing the examination for the first register would not present any difficulty.

MR. SCOTT asked if there would be any facilities provided for learning optics. THE REGISTRAR said that it was proposed to set up, under the Bill, a board similar to the Pharmaceutical Council. It would have medical representatives on it, and the fear was that they would stand out

for more stringent standards. For sight-testing opticians they might insist on a medical course. Dispensing opticians could be provided with a course through the technical schools. MR. McGrath stressed that the one thing the Council should fight for was a strong pharmaceutical representation on the board that would be set up. Pharmacy had the biggest group of dispensing opticians in the country and for that reason should have strong representation. MR. O'NEILL, agreeing with Mr. McGrath, said that there should be an optical-pharmacist group on the board.

MR. O'ROURKE said that from his own personal experience there was a strong case for retaining the chemist-optician. His training as a pharmacist particularly suited him to do optics well.

THE PRESIDENT said the Council's major interest in the Bill was to look after the welfare of the Society's members doing optics at present, or who proposed to do optics. The Council should oppose any move to set up standards so difficult as to make it impossible for members to do optics. The first essential, as Mr. McGrath had mentioned, was to seek adequate representation on the board.

MR. McGrath: On the basis of the number of chemistopticians today, pharmacy must go in for representation in a big way. One representative on such a board would not be sufficient

MR. LOUGHMAN said that the Council should insist in the Bill that all optical prescriptions should be compounded by chemists. It might even be worth while to have facilities in the College for training students in compounding optical prescriptions. It could be an optional subject.

THE PRESIDENT said that the people that the Council should worry about were the students. He understood that the registrar had been encouraging them to take a course in optics. It might be found, however, when the Bill was passed, that a course was prescribed far beyond what the Society had in mind.

MR. O'NEILL said that pharmacists should hold on to whatever they could. It was fortunate that the registrar was an optician as well as a pharmaceutical chemist. MR. KENNELLY suggested that a deputation consisting of the registrar and some chemist-opticians should meet the body controlling optics and hammer out a scheme. There might be a possibility of securing some concessions for chemists. Pharmaceutical students were today doing an advanced course in physics which was an important part in the training of an optician. He thought that the Bill was essential, but that the Council must do the best it could to preserve chemists' rights in that field.

Society Not Against the Bill

THE PRESIDENT said that the Society was not against the Bill but wished to safeguard the established rights of the members. He suggested that the registrar should arrange to have representatives from the chemists' side meet the council of the opticians to discuss the matter. In such a discussion the Society's aim should be not only to preserve existing rights, but to think of the future for its students who wished to do that subject. The president's suggestion was agreed to.

In reply to Mr. O'SULLIVAN, Mr. McGrath said that he had been making inquiries about lectures in horticultural and agricultural preparations for use against diseases and pests, but the proposed lectures could not take place until September.

(To be concluded.)

INFORMATION WANTED

The Editor would appreciate information about suppliers of the following items:

AMOLIN Elixir SCYAN

Friar's balsam?

A note on the history of a time-honoured medicament

By C. G. DRUMMOND

HEY would be poor citizens of Edinburgh who knew nothing of James Gregory, whose powder was loathed by every child between Land's End and John o' Groat's. They should know, too, something of Dr. Hamilton, also of Edinburgh, whose pills were, and are, well known. The list could be extended indefinitely—James's powder, Morison's paste, Fowler's solution, and so on. What of friars' balsam? Was it formulated by a long-forgotten individual of the name of Friar? Or has it some traditional connection with the Church? Is it known only in Britain? Or is it held in esteem over a large part of the world? Has it always been of the same composition?

Probable Religious Background

There is a strong possibility that it may have a religious background. The Church has for long been associated with healing, both spiritual and physical, and most religious foundations had, at one time, their medicine gardens where plants were cultivated so that those who practised the healing art might have their supplies at hand. As evidence, it is noteworthy that, while belladonna is not a native of lowland Scotland, it is still to be found growing as an "escape" from such gardens, though no monastery exists there today.

The use of aromatic balsams and gums in incense burning goes back to the ancient Egyptians and to the early Persian civilisation, and various reasons have been put forward to account for the practice. Some historians hold that, in those ancient civilisations, most services included some form of sacrifice, and commonly beasts were taken inside the sacred buildings, bringing with them an unpleasant odour to overcome which incense-burning began. Others maintain that, since in early religions prayers were regarded as rising upward to a god, it was better for them to ascend in company with the pleasant aroma of a burning incense. At all events the practice dates back a long way before Christianity began. In the Book of Exodus occurs the following passage: "Take unto thee sweet spices, stacte and galbanum, these spices with pure frankincense, of each shall there be a like weight. And thou shalt make of it a perfume, a confection after the art of the apothecary.'

There is to be seen the classical form which the prescription takes to this day. Galbanum was used by the ancient Israelites, and records show that a duty was levied on it at the Roman Custom House at Alexandria in the second century. Frankincense is known pharmaceutically as olibanum, and in the trade between Arabia, on the one hand, and the Egyptians and Phoenicians on the other, it was one of the most important articles of commerce many centuries before Christ. Theophrastus gives a detailed account of frankincense about 300 B.C., and Herodotus relates an annual tribute of 1,000 talents of the drug from the Arabians to Darius, King of Persia. The ruined temple of Apollo at Miletus records gifts that included gold and silver, ten talents of frankincense, and one of myrth. The Emperor Constantine offered to the Church under St.

Silvester, Bishop of Rome, A.D. 314–335, numerous costly vessels and fragrant drugs and spices, including *Aromata* and *Aromata in incensum*, understood to be olibanum. So, from earliest times, the use of gums and balsams can be traced in worship.

For centuries the moral and material welfare of the sons of the Church, as of people not connected with it, has been catered for by the fathers and brothers of different orders. They were the men of education and culture in early history, and they moved around the world healing bodies as well as minds. Vasco da Gama introduced certain drugs to Europe; others were brought by the Jesuit fathers, who went from Spain to South America. In that way also names were applied to certain remedies because of their distribution through the Church. Cinchona, for example, was known in Antwerp and Brussels as pulvis jesuiticus, because the Jesuit fathers administered it gratis to the poor. In the seventeenth century, cinchona was imported into Spain, and from there found its way to Cardinal Joannes de Lugo at Rome. De Lugo belonged to a Seville family, and Seville had at that time the monopoly of the trade with America. In Rome, cinchona was called Cardinal de Lugo's powder.

So there is no difficulty in connecting the Church with the healing art, and the way is now open to look more closely at Friars' balsam. That has been known in some form since the sixteenth century, though most pharmaceutical historians agree that its origin is lost in antiquity. Friars' balsam has always contained drugs whose properties were widely encountered in incense as well as in medicine. The Orders of the Church were spread over the world, and at one time friars' balsam appeared in practically every pharmacopæia in Europe.

Earliest Reference to Formula

Perhaps the earliest reference to a formula resembling tinct. benzoin. co. is that of Pomet, a celebrated physician, merchant, spicer and druggist of the late seventeenth century. The galenical is mentioned by him in 1694 from the English translation of Mr. Pimodan, King's Lieutenant of Toul, in Lorraine. His formula consisted of a large selection of aromatics, containing, as it did benzoin; aloes; balsam of Peru; storax; myrrh; olibanum; angelica root and St. John's wort flowers. The aromatic gums are seen to be fully represented, together with aromatic roots and flowers. Today, the formula is less comprehensive, but it still includes benzoin, aloes, storax and tolu.

But while all this appears conclusive, the ultimate conclusion should not be drawn without a look at other evidence—for example, the claims made for Peter de Frias. Peter was a Portuguese merchant, who, in 1581, obtained a balsam from the Viceroy of Peru. Theories have been advanced to the effect that Friars' balsam was really Frias' Balsam, and had no connection with the friars at all. It looks as if the balsam Peter imported was Peruvian which Monardes of Seville had accurately described sixteen years before de Frias is heard of in that connection. Peter was in all prob-

ability merely an importer of the commodity.

James's Dispensatory, published in London in 1747, said that there were at least twenty people in the city who got a comfortable subsistence by selling friars' balsam under various names and titles, and, he says (more in sorrow than in anger) "one had the Impudence to obtain a patent for it, though in order to do so he must have been obliged to swear it his own invention, in defiance of Conscience and the Pillory, and notwithstanding that Pomet published the receipt in his history of drugs many years ago."

Had de Frias lived in the twentieth century, he would have made more than a comfortable subsistence by trading on the heaven-sent coincidence of his name, and would in all probability have marketed his product with the now familiar wording: "None genuine without the signature."

Can anything be learned from the individual ingredients? Benzoin, from which the tincture takes its name, is probably the most recent addition to the balsam. Old books of formulas prove that it was the custom to incorporate new drugs in existing preparations, and it is likely that some form of friars' balsam existed before benzoin was an article of commerce in this part of the world. The first reliable hint of the existence of benzoin is to be found in the fourteenth century, when it was known as Java frankincense. That name is important. The Arabic name for it was corrupted into Banjawi, Benzui, Benzöe, and later to the more vulgar English form of Benjamin. Vasco da Gama discovered the existence of Siam benzoin, but it was not until 1563 that de Orta gave a detailed account of the drug, and of the distinguishing characteristics between the product of Java and that of Siam. So that Europe did not really know much about the gum until the late sixteenth century.

That was not the case with storax, which has been known since ancient times. A form of storax was offered by the Emperor Constantine to the Church of Rome under St. Silvester, and quantities of the drug were imported into China by the Arab traders during the Ming dynasty. Professor Krinos of Athens stated in 1871 that storax was still being used in the churches and mosques on the southern coast of Asia Minor. There remains some doubt as to what was meant in the Scriptures by stacte. It may have been storax, or perhaps a form of liquid myrrh.

Something of a Puzzle

Aloes, another ingredient, is also something of a puzzle. The connection between aloes and religion is of great antiquity, and in the early eighteenth century the Edinburgh Pharmacopæia listed a tincture of aloes with the synonym of "sacred tincture." That looks conclusive enough on a first scrutiny, but, as indicated, there are difficulties. The aloes we use in pharmacy was known to the ancient Greeks. There was traffic in the drug from the island of Socotra as early as the fourth century B.C. It was on the urging of Aristotle that an expedition set out to find the island which produced aloes. When it was found, the population was removed and replaced by Greeks. By the seventeenth century, the East India Company was sending aloes to this country. The Barbados variety was almost certainly introduced by the Spaniards and cultivated there. In this country, as elsewhere in Europe, the medicinal qualities of aloes were recognised, and the "noble drug" of Aristotle was firmly established. Aloes is several times mentioned in the Scriptures, usually in company with myrrh and frankincense. It is noted in the New Testament as having been used in the sheets in which the body of the Saviour was wound. Reliable evidence suggests that the aloes there referred to is not the bitter aloes of pharmacy, but a fragrant wood from the tree called Agallocha or Aquilaria agollocha. How that fragrant wood, also used in incense, came to be confused with the aloes of medicine, or when, cannot be said. Confusion there undoubtedly seems to have been. The trouble may have been due to a faulty translation. The effect was that credit was given to bitter aloes for its sacredness, as in "sacred tincture." If that theory is

correct, then it may be due entirely to a faulty translation that the bitter, nauseous aloes is an ingredient in friars' balsam. To accept that the Malayan lignum aloes or agollochum is the aloes of Scripture—and there seems no doubt on that score—is to recognise that it should be in friars' balsam instead of bitter aloes. If then, somewhere down the centuries, the mistake was made and has been perpetuated, it would explain the presence of what has always seemed something of an interloper.

Tolu Replaces Peru

The only other ingredient today is balsam of tolu, which replaced Peruvian balsam, probably on grounds of economy. Since Peruvian balsam was at one time an ingredient, perhaps a passing glance should be directed at it before passing to tolu. Originally it came from Guatemala, and it was first described by Monardes of Seville in 1565. At that time it commanded the astonishing price of from 10 to 20 ducats an ounce, equivalent to from £4 10s. to £9, and when it was taken to Rome it fetched as much as 100 ducats. The balsam was thought to possess great virtues, excellent accounts having been sent to Rome by Roman Catholic missionaries working in the new Spanish Empire. So well received were those accounts that Pope Pius V granted a faculty to the Bishops of the Indies, permitting the substitution of the balsam in the preparation of the chrism. That document, dated August 2, 1571, is preserved in the archives of Guatemala. Trade with Europe was mostly from Callao, and in that way the misleading name of Peruvian balsam came to be applied to the drug. Similar examples of erroneous naming are to be found in "Turkey" rhubarb and in opium. As was to be expected, such high prices led to a big increase in supplies, and the price fell.

Balsam of tolu, now used in friars' balsam, was also described by Monardes, though I have been unable to trace any religious connection. It is obvious that the tolu balsam was not held in the same high esteem, and it was much later that it found its way into tinct, benz. co. on economic grounds, and, in all probability, long after any Church connection with the preparation had ceased. Though the balsam itself was known in the sixteenth century, particulars of the tree and the method of collection were not accurately known until the nineteenth century. The name was applied because it came from the region of the Tolu Mountains in South America.

That, briefly, is the story of the ingredients. Some information may be gained by examining the various names by which friars' balsam has been known, both here and in other countries. Here are a few:—

Turlington's drops.
Wade's balsam.
Baume de Commandeur.
Balsam traumaticum.
Jesuits' drops.
Balsam catholicum.

Beyond being taken as an indication how widespread was the use of the tincture, the names Turlington, Wade and Commander may be ignored. Some interest attaches to the name traumatic or wound balsam. Pharmaceutically, friars' balsam is known to possess styptic qualities, and is still used for application to wounds. Probably that is why it has been called traumatic balsam, but there is another possibility. All of the ingredients are balsams—using the term "balsam" loosely—and are obtained by wounding or bleeding the tree or plant and allowing exudation to take place. It may, therefore, be that "traumatic" is derived from that use of the term. The gaps are difficult to fill, and one could spend years in trying to complete the chain of evidence.

The names Friars' balsam, Catholic balsam, and Jesuits' drops, taken with the record of the healing art practised by the Church, point the connection between the ingredients and worship. In face of that evidence, the story of a Mr. Friar, like that of Peter de Frias, may surely be discounted.

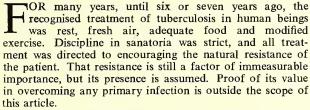
A MODERN REVOLUTION

in the treatment of tuberculosis

as reflected in the work of the pharmaceutical department at Scotton Banks

Hospital for the Treatment of Tuberculosis, Knaresborough, Yorks

By MARGARET M. FALCON (Chief Pharmacist at the Hospital)



Surgery, major or minor, during the same period tended toward resting the diseased area. Infected joints were—and still are—immobilised in plaster of Paris casts. Before 1948 no drug that was selectively destructive to Mycobacterium tuberculosis was available, and the mortality rate in tuberculous meningitis was 100 per cent.

But drugs were freely used to alleviate some symptoms of the disease. Stimulating expectorant mixtures containing such drugs as ammonium carbonate, extract or tincture of ipecacuanha, and potassium citrate were given to promote productive cough. The main stand-by, still in use at Scotton Banks, was a mixture containing sodium bicarbonate, sodium chloride, aromatic spirit of ammonia and spirit of chloroform, taken in very hot water before breakfast. The endeavour was made to alleviate coughing with medicaments such as menthol and eucalyptus pastilles and a mixture containing solution of morphine hydrochloride, dilute hydrocyanic acid, syrup of tolu and acid infusion of roses. There were many other variations on the linctus theme. Syrup of codeine phosphate was much in demand during the nights, and in extreme cases linctus of diamorphine was prescribed. Complications such as asthma or dyspnœa arising from loss of lung tissue or emphysema called for ephedrine, stramonium, potassium iodide, adrenaline or aminophylline in various forms.

Sleeplessness caused by mental stress was relieved by hypnotics. Insomnia was not infrequent in hospitals where long-term treatment—over a period of months or even years—was the rule rather than the exception. Where cough

was the main factor those drugs were of no value unless combined with an antitussive. Hypnotics were administered in mixtures containing chloral hydrate, bromides, and tincture of hyoscyamus, whilst barbiturates in tablet or capsule form were fre-

The author of the article.



in-patients are in four-, two- or one-bed cubicles, according to the severity of the case. A glass wall divides the single-bed cubicles, as in the picture. In consequence patients never feel entirely cut off from their fellows.

quently prescribed. Patients were given cod-liver oil, cod-liver oil and malt, compound syrup of ferrous phosphate, or glucose monohydrate to build up their general condition. Loss of appetite called for bitters, such as infusions of quassia or gentian, or nitrohydrochloric acid and arsenical solution. Rest in bed frequently caused lack of intestinal muscle tone resulting in constipation. Other factors contributing to that were poor appetite and so lack of bulk and "roughage," and the administration of morphine salts. Senna pods for making infusion of senna, liquid paraffin, with or without phenolphthalein, magnesium sulphate or hydroxide, syrup of figs, various presentations of cascara extracts, tablets and pills containing phenolphthalein, aloin or colocynth were in constant demand. Indigestion and flatulence demand neutralisation and carminatives in and out of hospital; the treatment is established and usually effective.

Tuberculous lesions in the larynx were eased by spraying the throat with a solution of chlorbutol in light liquid paraffin. Acute pain on swallowing was relieved by insufflation of orthocaine powder before meals through a Leduc's tube. Patients were not allowed to speak—only to whisper. Inhalants such as Lee's, containing creosote, iodine, phenol and spirit of nitrous ether, were used on a Burney Yeo's mask, and compound tincture of benzoin from a Nelson's inhaler. A case of bronchiectasis, before the advent of penicillin, was given potassium iodide and creosote or guaiacol orally, and patients producing appreciable amounts of positive sputum drank mixtures containing solution of mercuric chloride, tincture of hyocyamus, tincture of ferric chloride and glycerin.

Relief for Enteritis, Diarrhæa, Cough

Compound tincture of chloroform and morphine or chalk and opium mixture relieved patients suffering from tuberculous enteritis, and syrup of codeine phosphate was regarded as a good double alleviative for diarrhæa and cough. Kaolin poultice was applied to the chest in pleurisy. Rubbing liniments (e.g., white liniment or methyl salicylate liniment for "rheumatic" pains of unknown origin) were supplied, together with tablets of aspirin, and compound tablets of aspirin or of codeine. Those tablets had the disadvantage of often causing or aggravating sweating.

Tablets of ferrous sulphate or mixtures containing iron and ammonium citrate were found of little value in the iron deficiencies associated with tuberculosis. Occasionally colloidal ferric hydroxide was given by intravenous injec-





Although the work of the pharmacy department has changed, it has not lessened. Two pharmacists are kept fully occupied supplying the medicinal requirements of the hospital's over 200 in-patients and a large out-patient department.

tion, but to induce absorption of iron to maintain a normal hæmoglobin level is difficult during the acute stages of the disease, or in any static state. The hæmoglobin level usually rose without extraneous aid as the condition improved.

Solutions of chloroazodinum, 1 in 3,300, were used to wash out intrapleural effusions of pus, etc., sodium tetradecyl sulphate being at one time added as a wetting agent. The results were satisfactory, but the substance became virtually unobtainable towards the end of 1944, owing to import restrictions. Procaine hydrochloride in a 1 per cent. or 2 per cent. solution was the local anæsthetic of choice for minor surgery. For nerve block in major surgery, solutions containing amethocaine hydrochloride 0.05 per cent. with procaine hydrochloride 0.25 per cent. replaced general anæsthesia obtained through cyclopropane or nitrous oxide. Those local anæsthetics are still used, and lignocaine hydrochloride 0.5-2 per cent. solution has been added to the list. Amethocaine hydrochloride, 2 per cent. solution, is supplied for anæsthetising the throat before bronchoscopy.

Morphine sulphate, ampoules containing solutions of the total alkaloids of opium, and diamorphine hydrochloride were prescribed for post-operative conditions or acutely ill patients, so as to relieve pain and anxiety. Diamorphine

hydrochloride was the drug of choice after chest surgery, for not only was pain considerably eased but coughing became bearable—an important factor after chest surgery—yet vomiting and constipation were infrequent. In spite of its deletion from the British Pharmacopæia, 1953, and the National Formulary because of its potentialities as a drug of addiction, diamorphine retained a useful place. Now its manufacture and importation are being forbidden by law, as they have been in the United States since 1925.

Patients suffered acute discomfort and pain from breakdown of damaged tissue (e.g., from running sinuses) tracking from the site of infection to the cutaneous tissue, sometimes involving large areas. Tulle gras dressings were applied in those cases, together with any suitable substances claimed to overcome streptococcal and staphylococcal invasions, secondary infections due to those bacteria being common. Solutions containing sodium sulphacetamide or Propamidine isethionate in a jelly base were applied, and the edges of wounds cauterised by copper sulphate crystals or silver nitrate "pencils." Sodium aurothiomalate in graded doses from 0.001 to 0.3 gm. were given by intramuscular injection, and lupus erythematosus cases were treated by sunlight and vitamin D, 50,000 international units per dose, with colloidal calcium.

Those were the drugs and treatments in general use, often with considerable alleviation of distress, at this hospital until August 1948, when the first supply of streptomycin



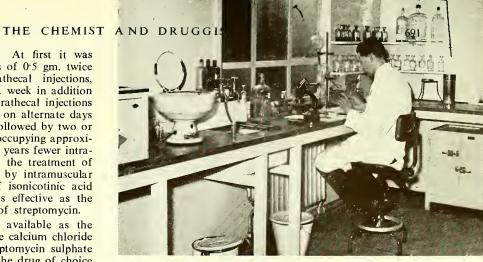
The advent of chemotherapy called for the setting up of a sterile department, especially for intraspinal injections. The department is also essential for local anæsthetics and other parenteral injections. Although intrathecals have in turn largely been superseded by newer treatments combining streptomycin intramuseularly with isoniazid orally, the department is still in constant use for the preparation of sterile solutions.

calcium chloride complex was received. At first it was given by intramuscular injection in doses of 0.5 gm. twice daily. In tuberculous meningitis intrathecal injections, 50-100 mgm., were given once or twice a week in addition to the intramuscular injections. Later intrathecal injections were given daily for fourteen days, then on alternate days for a period of seven to fourteen days, followed by two or three times a week, the whole treatment occupying approximately twelve weeks. During the past two years fewer intrathecal injections have been prescribed in the treatment of tuberculous meningitis, for streptomycin by intramuscular injection, combined with oral tablets of isonicotinic acid hydrazide (see below) is found to be as effective as the intramuscular and intrathecal injections of streptomycin.

Presentations of streptomycin became available as the sulphate and hydrochloride, as well as the calcium chloride complex. In December 1949 dihydrostreptomycin sulphate was used in this hospital; it was in fact the drug of choice during the period June 1950 to December 1951. Results reported in a Medical Research Council inquiry showed that dihydrostreptomycin sometimes caused a more serious complication (incurable deafness), whereas streptomycin often caused disturbance of the vestibular branch, especially in elderly people. The giddiness and ataxia usually cleared in a few months.

Streptomycin calcium chloride complex and a combination of streptomycin and dihydrostreptomycin sulphates, which have been available since May 1953, are in general use in this hospital, doses of 1 gm. daily by intramuscular injection being the general rule. Streptomycin is also injected into intra-pleural and intra-articular spaces, or on occasion inhaled from an Aerolyser, those being adjuncts to intramuscular injections. Remarkable healing is obtained in cases of tuberculous disease of the larynx.

In October 1948 sodium para-amino salicylate became available in small amounts. Its value is that it is capable of attacking and causing temporary damage to the Myco-bacterium tuberculosis. The drug improves the appetite, relieves cough, and endows the patient with a feeling of well-being-a great advantage even were there no chemotherapeutic effect. The powder is readily soluble in water, and taken by mouth in mixture, cachet or tablet form. The treatment must be continuous, for the substance is rapidly eliminated—one estimate being 75 per cent. of a 3-gm. dose in two hours. Given in conjunction with streptomycin or with isonicotinic acid hydrazide (isoniazid), it delays or prevents development of streptomycin-fast or isoniazid-fast strains of Mycobacterium tuberculosis. That is a result of the utmost importance both for the welfare of the patient and for the protection of the community. Emergence of resistant organisms is not confined to any one disease or to any one drug. Tuberculosis is not an uncommon complaint, however, nor does it yield to treatment in a matter of days. Should a resistant strain of M. tuberculosis appear, the inherent danger is not difficult to imagine. The danger is lessened for the community so long as the host is confined within limits, as in a sanatorium. Should such



In a tuberculosis hospital pathological examinations are naturally of the greatest importance. At Scotton Banks the pathological laboratory is adjacent to the pharmaceutical department, and there is close co-operation between the two.

a host be allowed to go home or decide to leave the hospital against medical advice, then the picture is altered. 'Contacts," particularly young children, might be vulnerable to infection, and any initial infection from such a source would be resistant to the chemotherapy now available.

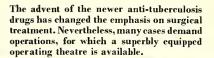
Initially sodium para-amino salicylate (PAS) was dispensed at this hospital in 3-gm. and 5-gm. powders. The substance was unstable to some degree, and m-amino phenol appeared all too rapidly in aqueous solutions. The dosage was high (e.g., 30 gm. in twenty-four hours for six-day periods of each week over three or four months) and gastric irritation, vomiting and diarrhœa frequently occurred. Today the substance is stable in its dry state and is dispensed in the department as a mixture containing an appreciable volume of syrup. The mixture seldom causes intestinal disturbance in doses varying from 12 to 18 gm. per day. Mixtures containing saccharin sodium instead of sugar are made up for diabetic patients. Perhaps one person in fifty finds PAS preferable in the form of cachets or tablets, but the mixture is generally well tolerated. Antihistaminics are prescribed where considered advisable to forestall or relieve any development of skin rashes. Should that occur, desensitisation to the drug may be achieved by small doses orally (e.g., 0.1 gm. daily for five days, increasing by 0.1 gm. every four or five days until the usual dose is again arrived at). That kind of approach is considered advisable whenever drug sensitivity appears as a result of chemotherapeutic substances used in the treatment of tuberculosis.

For a short time the thiosemicarbazones were used in conjunction with PAS and streptomycin, but at the beginning of 1952 isonicotinic acid hydrazide made its appearance and the thiosemicarbazones are no longer prescribed in tuberculosis: they retain a place in the treatment of

A feature of the medical superintendent's consulting room is the viewing box battery (right background) on which a patient's progress may be observed by direct comparison of x-ray plates, especially tomographs.



Treatment rooms at Scotton Banks Hospital have been planned and equipped to enable each patient to be attended to expeditiously as well as efficently by the









The children's ward at the hospital is one of the most rewarding. Patients as young as eight months and up to seven years old are treated. In the intervals between compulsory rest they are given "lessons," which may take the form of listening-in.

leprosy. Isoniazid is another substance capable of attacking the tubercle bacilli. It is usually given orally as tablets, 150 mgm. to 300 mgm. per day, and always in combination with streptomycin or PAS, or both. If the drug were given alone, resistant strains of bacillus would appear within a short period of time—four to seven weeks. Toxic effects are few, and isoniazid may be injected intrathecally or used in 2 per cent. solution as a local application for pleural empyema or fistula. There is a theory that isoniazid is readily diffusible, carrying streptomycin to less accessible areas attacked by *Mycobacterium tuberculosis*, for example the meninges or caseous tissue surrounding cavities and chronic lesions.

The next substance in the isoniazid series appeared in May 1954, when cyanacetic acid hydrazide was used for patients in this hospital. No assessment has yet been made of the value of the drug in the treatment of tuberculosis here, but it has not appeared promising in some recent experimental investigations. Another substance of similar chemical structure is o-hydroxybenzal isonicotinyl hydrazone. Doubtless in time the series will produce names as numerous as the sulphonamides or hormones. Streptokinase-streptodornase-enzymes used for the liquefaction of fibrinous, purulent exudations-have been used clinically for effusions in the pleural cavities and in tuberculous meningitis. Polythene packs, inserted during chest surgery, are still occasionally made up in the department. Before material capable of withstanding sterilisation by autoclaving became available, the packs were sterilised in an atmosphere of formaldehyde vapour.

Up to the present time streptomycin, PAS, and isoniazid are the drugs of paramount importance in the treatment of tuberculosis. Their introduction has brought about a considerable change in the work done in the pharmaceutical

School life in a hospital takes many forms. Here the teacher is giving guidance to a child artist. The bed-rest easel enables the painter to work lying down.

department. When this hospital was first opened one of the medical staff issued medicines and routine ward requirements. During the 1939-45 war a pharmacist was appointed for work resulting from war-time casualties admitted to hutments built in the hospital grounds. The accommodation was extremely limited—there were neither facilities nor apparatus for work involving aseptic techniques. Eventually the situation eased. A self-contained department was developed, and there are now two pharmacists to cope with the duties. All drugs, dressings and surgical instruments are ordered, stored and issued by the department. There are ward baskets with their varying requests, stock mixtures, lotions for external application, sterile solutions to be made for local or parenteral use, as well as prescriptions for individual patients to be supplied. Records relevant to the receipt issued and prices of goods are kept. As a matter of financial interest the original cost of PAS was £36 per kilo, and today the cost of a routine six-week treatment is 12s. 6d. to 18s., depending upon the dosage. A twelve-week treatment of streptomycin (1 gm. daily) and isoniazid (200 mgm. daily) costs £6 11s. 1d. Thus a most acute case of tuberculosis requiring combined treatment with those three important drugs, for a twelve-week period, would be in the region of £8 3s., or 13s. 7d. per week. The total in-patient cost for the last financial year at this hospital was £9 8s. 11d, per bed per week; those drugs would account for about 7 per cent. of the cost!

One of the most important developments in the prevention of tuberculosis in this country occurred at the end of 1949, when Bacillus Calmette-Guérin vaccine (B.C.G.) was introduced. That was a great advance, for whereas chemotherapy is necessarily therapeutic in application, B.C.G. is prophylactic. The value of the vaccine has not yet been finally assessed, but there is a steadily increasing willingness to accept it when recommended by chest physicians.

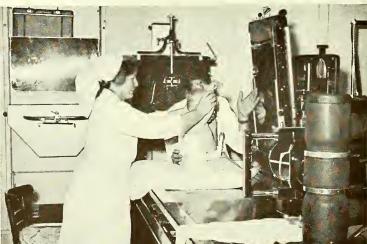
COMPARATIVE FIGURES SHOWING THE DECREASED DEMAND FOR DRUGS OF A PALLIATIVE NATURE

	1946-47	1953-54	Relative percentage
Mixtures: —			
Expectorant	4	1	25
Bromides, etc	7	0	0
"Indigestion"	3	- 1	33
Syrup of codeine phosphate	8	i	12
Purgatives:—			
Liquid	3	1	33
Tablets, etc	11	i	9
Dangerous Drugs:—			
Morphine sulphate and dia-			
morphine hydrochloride	8	1	12
Ampoules containing total			
alkaloids of opium	4	1	25

The reductions are, of course, not an indication of any diminution in the demands for pharmaceutical services, which have increased steadily in many directions.

Of crucial importance in a tuberculosis hospital is the x-ray department, on which, at Scotton Banks, no expense has been spared to secure the most efficient apparatus available.





ISOTOPES IN CANCER RESEARCH

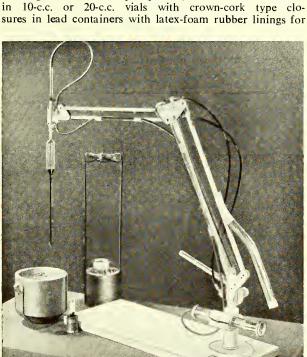
THEIR HANDLING, STANDARDISATION AND USES AT A LONDON HOSPITAL

NE of the most spectacular advances in medical treatment during recent years has been the increasing use of radioactive isotopes. At the Institute of Cancer Research, Royal Marsden Hospital, London, S.W.3, a number of different isotopes are being used in the diagnosis and treatment of malignant diseases and for basic research.

The isotopes are ordered from Harwell or the Radiochemical Centre, Amersham, and are prepared for use in measured doses by a physicist at the Institute. Requirements must be estimated as accurately as possible, especially of the short-lived isotopes,

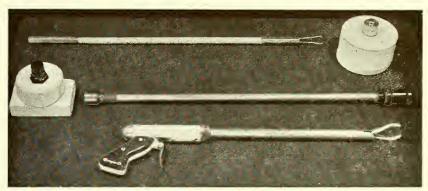
some of which have a half-life of only a few hours and must therefore be used quickly.

Most are transmitted in aluminium cans fitted inside lead or steel vessels—though some, for instance, radioactive gold, iodine and phosphorus, come from Amersham in 10-c.c. or 20-c.c. vials with crown-cork type closures in lead containers with latex-foam rubber linings for



Remote-control pipette.

shock absorption—and are delivered into a special store at the hospital. There they are placed immediately into a bunker made of interlocking concrete bricks. In the bunker are lead blocks having cavities in graduated sizes for different-sized containers, and a large space at one end for winchesters. The store also houses a cupboard in which are pigeon holes of varying sizes, faced with lead blocks, for storing clinical dilutions of isotopes prepared ready for use. Another small cupboard with lead-lined doors holds the less dangerous β -sources, such as strontium plaques and eye-applicators, which consist of strontium 90 in silver foil moulded into a plastic shell that fits over the eye. The applicators are being used in the treatment of superficial



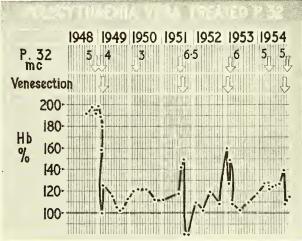
Some handling tools for isotopes,

corneal lesions. The gold grains and tantalum wire are also kept in a concrete bunker in the store, the containers for tantalum wire having their labels attached at the end of a long piece of string, for selection of the sample required without the necessity of going too close. All of the containers and holders for the different vessels, such as a lead container for holding ampoules upright during sealing, are designed and made at the hospital.

Samples received from the atomic piles are checked for activity. The activity of γ -emitting isotopes is compared with that of a standard sample using an ionisation meter. Another similar instrument having a built-in standard of strontium 90 measures β -radiation.

All isotopes prepared in the laboratory are moved and handled with remote-handling tools. Special tools are used to transfer screw-capped containers to lead holders which grip them so that the caps can be unscrewed by the use of a long rod. Containers of powdered or crystalline isotopes are lifted with remote-control tongs and their contents emptied into a vessel usually containing the medium in which they are to be dispensed, the work being done behind a screen of lead bricks topped by a plastic window (which provides efficient protection against β -emitting isotopes). For higher activities or more volatile isotopes there is a fume cupboard faced with a lead partition through which remote-handling tools pass; they are manipulated externally. Inside the cupboard a lead glass screen gives protection from α -radiation, and mirrors above aid manipulation.

If substances are to be dissolved in a hot vehicle it is



Blood chart of patient treated with radioactive phosphorus

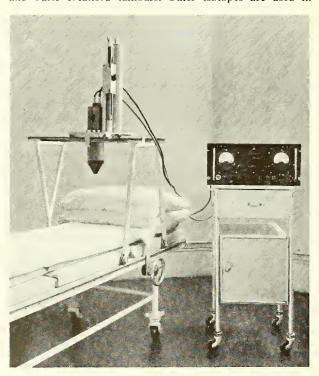
preferable to heat it before the isotopes are added, since it is safest not to heat active solutions. Dilutions are made using standard measuring pipettes fitted into a remote-control pipette handler. Solutions can be sterilised under usual conditions of temperature and pressure in an ordinary autoclave provided with a protective "wall" of lead bricks in front. Gold colloid solutions, which cannot be sterilised by autoclaving, are dispensed in accordance with normal aseptic technique.

An example of treatment carried out at the Institute is the use of radioactive phosphorus, P32, in dealing with certain malignant blood diseases such as polycythæmia, leukæmia and certain lymphadenopathies. A radioactive solution of sodium phosphate is sterilised by autoclaving and injected intravenously. Another use of P32 is in the treatment of superficial skin tumours. A sheet of polythene impregnated with P32 is backed up with lead rubber and the outline of the lesion traced on to the lead rubber. The shape is then cut out with a scalpel, and the whole enclosed in transparent cellulose tape. The dose-rate is measured, and the shape can then be applied to the lesion.

Radioactive gold is used as a colloidal suspension in the treatment of malignant effusions. When small quantities are run in at the site of the effusion, the suspension is slowly absorbed, and most of the radiation is directly to the serous surfaces. Gold grains are implanted into tumours for which radon seeds were previously used. The grains are implanted into the tumour with a multiple-shot introducer made at the Institute. The instrument is in the shape of a gun with a long probe-like rod in the barrel, and it is with the rod that the grains are introduced. The magazine holds fifteen grains, which are released singly by trigger action.

Radioactive iodine, I131, is used in "tracer" doses for estimating the uptake of iodine by the thyroid gland, and in therapeutic doses for treatment of carcinoma of the thyroid and metastases.

Solutions of radioactive sodium, bromine and colloidal gold are used for the treatment of multiple superficial lesions of the bladder and other surfaces, and tantalum wires are implanted for solitary lesions into the bladder and other localised tumours. Other isotopes are used in



Movable scintillation counter equipment and couch for radioactive iodine studies.



External counting on patient after administration of radioactive iron.

minute "tracer" doses for diagnostic and research purposes.

Radioactive iron, Fe59, is used in the estimation of bone-marrow function in blood diseases in various anæmic states, and vitamin B_{12} , labelled with radioactive cobalt, is also used for diagnosis in anæmias, particularly those related to pernicious anæmia.

In a special measurement laboratory at the Institute, the standard samples are measured in order to calibrate the ionisation meters, and measurement is carried out of clinical samples, such as body fluids after the administration of isotopes for diagnostic purposes, or post-operative tissue samples of tumours, etc., to measure the uptake of radioactive substance.

One of the instruments used is an apparatus for measuring the activity of urine samples. Four large geiger counters are incorporated in the instrument, which accommodates two-litre bottles, but can be adapted to take cartons of fæces. It is checked with a standard cobalt source before use.

Small quantities of fluid such as blood are measured using a geiger counter surrounded by a glass jacket which holds 10 c.c. of the fluid, the counter wall being thin enough to allow the emission of β -radiations, so that low activities may be accurately measured. The instrument is placed in a lead "castle" and checked against a standard source of Co60. Solid clinical samples may be ingested in potassium hydroxide solution or other acid or alkali and measured similarly. Special glassware is kept for each type of operation, and pipettes have a suction device and are never placed in the mouth. Rubber gloves are worn for all operations, and all personnel wear a film badge, which is collected once a week and the dose of radiation received measured, the maximum permissible dose being 300 milliroentgens weekly. The average dose absorbed by workers is fifty milliroentgens per week.

In a year in which the International Pharmaceutical Federation is holding its biennial Assembly in London, British pharmacists may find it interesting and profitable to examine briefly the background, history and structure of some of the

PHARMACEUTICAL ORGANISATIONS OF OTHER COUNTRIES

DENMARK

PHARMACISTS in Denmark have two vocational organisations. Danmarks Apotekerforening (Society of Danish Licensed Pharmacists), an organisation of pharmaceutical chemists who have been granted the royal licence to carry on a pharmacy; and Dansk Farmaceutforening (Society of Danish Pharmaceutical Chemists), the members of which are pharmaceutical chemists employed at pharmacies (as associate members there are some pharmaceutical chemists not on staffs of pharmacies).

The Danmarks Apotekerforening

THE Danmarks Apotekerforening (Society of Danish Licensed Pharmacists), is an association of owners of pharmacies, i.e., of all pharmaceutical chemists who have been granted a royal licence to carry on a pharmacy. They number 350, plus associate members.

Danmarks Apotekerforening was established in Copenhagen on September 4, 1844. At its first general meeting forty-three licensed pharmacists applied to join. months later the number of members had increased to fiftyfive. The original rules divided the members into active and associate members. Licensed pharmacists and pharmaceutical chemists who had completed their training were eligible for active membership, and "any person of un-blemished reputation residing in Denmark or elsewhere and wanting to take part in the scientific endeavours and arrangements of the Society" for associate membership. In 1873 Dansk Farmaceutforening (the Society of Danish Pharmaceutical Chemists) was established and in 1897 it was made a rule of Danmarks Apotekerforening that a member could not at the same time also be a member of Dansk Farmaceutforening. In 1894 it was decided that no person should be eligible for associate membership unless he had first been an active member, but the rule was amended in 1930 to admit pharmaceutical chemists in charge of hospital dispensaries and other persons associated with pharmacy.

From its foundation the activities of the Society were directed by an executive committee. In 1918 a delegate committee was also set up, and since 1936 that has comprised fifteen members (and three deputies) elected by secret ballot by the active members, and one each by the eleven districts, with an extra delegate from the district of Copenhagen. The chairman and vice-chairman are elected by the committee from among its own members. They hold office for three years, but are eligible for re-election. No member today may hold office as chairman for more than nine years, but in its first eighty years the Society had only three chairmen.

in its first eighty years the Society had only three chairmen. In 1926 an office was set up and a clerk engaged. In 1930 a secretary was appointed to take charge of the office and either personally or with the help of an assistant appointed by the committee to edit the journal of the Society. Under the Rules of 1894 twelve branches were established, each with a committee and rules and regulations of its own (though approved by the Society). The Society's object is to promote the interests of Danish licensed pharmacists and of pharmacy, and to maintain co-operation among Danish licensed pharmacists. The

Society publishes a fortnightly journal, Archiv for Pharmaci og Chemi (Archives of Pharmacy and Chemistry), which carries scientific and vocational information and announcements. Active members pay an annual subscription plus a larger supplement related to their turnover in prescription business.

The committee appoints an executive comprising a chairman, vice-chairman, and a third member, and the executive manages the business of the Society and is responsible to the committee. Matters of special importance, such as agreements and major financial problems, have to be submitted to the whole committee, which forms a quorum regardless of the number of members present. In recent years the committee has held four to five meetings annually.

A tribunal of honour set up in 1894 was replaced by a collegiate court in 1930. The court settles disputes between the Society and its members. It is composed of four members of Danmarks Apotekerforening, with a judge as president. It has power to impose fines to a maximum of Kroner 5,000 (£250). Among other things the Society makes service agreements with pharmaceutical chemists who are members of Dansk Farmaceutforening and employed at pharmacies. In the course of time numerous service agreements have been made between the two Societies. In 1921 the parties could not agree upon the terms of service, and a lengthy strike took place. Today the agreements are binding on members. In recent years agreements on salaries have been possible only after arbitration proceedings, under which licensed pharmacists are compensated for increases in salaries by increases in the prices of medicines (which are fixed by the authorities and can be altered only by royal decree). Among other agreements made between Danmarks Apotekerforening and Dansk Farmaceutforening is one under which the number of apprentices is limited.

The Society issues price lists, including a price list of specialities, on which the profit is based on a list of prices issued by the authorities. The Society also issues a price list of preparations formulated by Danmarks Apotekerforening: the so-called DAK preparations. In the early twenties it was realised that, if pharmaceutical work were to be retained by licensed pharmacists and the pharmaceutical profession, it would be necessary to engage in pharmaceutical and technical as well as scientific research, both in pharmacies and in a central laboratory. A committee was set up to produce a set of formulas for medicaments that pharmacists themselves could prepare. The committee took the line that it should be made possible to prepare such medicaments at every pharmacy, that they should be alike in every respect no matter at which pharmacy they had been made, and that the packaging and get-up should be uniform. Many DAK preparations are considerably cheaper than similar specialities made at chemical works.

In the course of time the Society's DAK laboratory has been extensively developed. It now has an independent biological section, besides functioning as a central laboratory for pharmacies.

A doctors' DAK book, which lists DAK preparations and describes their composition and use, is sent to all members of the Danish medical profession. *Danmarks Apoteker*-

forening also publishes a book (F.D.A.) of recipes of cosmetic preparations and preparations of a more technical nature. The DAK laboratory co-operates with the laboratory of the Pharmacopæia Committee. Drugs in the DAK book that prove to be of lasting importance are withdrawn from it and incorporated in *Pharmacopæia Danica*, and about 30 per cent, of the preparations incorporated in *Pharmacopæia Danica* since 1924 were formerly DAK preparations. The staff of the laboratory give lectures to pass on knowledge of new ideas in the field of pharmacy and on the manufacture and use of medicaments. As a result, all Danish pharmacies are today able, for example, to make tablets, a situation that probably cannot be paralleled in any other country in the world.

An important part of the activities of the Society is cooperation with the societies of licensed pharmacists in the other Scandinavian countries, whose chairmen meet once a year. The DAK laboratory co-operates with similar laboratories in the other Scandinavian countries, and a conference of Scandinavian licensed pharmacists and pharmaceutical chemists is held at intervals of a few years and generally attended by several hundred licensed pharmacists and pharmaceutical chemists.

The payment of salaries to pharmaceutical chemists employed at pharmacies is administered by Danmarks Apotekerforening through a special institution, the so-called salaries fund. Licensed pharmacists pay to the fund an amount in respect of each pharmaceutical chemist employed. The payment to the fund is the same whether the pharmacist employs young or old pharmaceutical chemists, and whether or not such pharmaceutical chemists are breadwinners. Salaries of pharmaceutical chemists are according to scales similar to those applying to the salaries of civil servants. After the salaries have been calculated, the salaries fund notifies to each licensed pharmacist the amount payable at the end of the month to the individual pharmaceutical chemists. The Apotekerforening is not responsible for payment of salaries to non-pharmacists. The Society has also organised an employment office, to assist members wanting pharmacists. The office issues weekly lists of vacant posts to pharmacists registered at the office. It has also set up a valuation board composed of two licensed pharmacists and a valuer, himself a pharmaceutical chemist. The board assists in the valuation of equipment and buildings when a pharmacy is to be sold. Members may avail themselves of the services of the valuer at stocktakings, which, according to existing rules, must take place every fourth year. Eighteen persons, eleven employed in the DAK laboratory, perform the day-to-day work of the Society.

The Dansk Farmaceutforening

THE Dansk Farmaceutforening was founded on October 11, 1873, to protect and further the pharmaceutical interests of its members. One reason for its establishment was that legislation enacted in that year made it difficult for pharmaceutical chemists to become independent, licensed pharmacists. Not till 1890, however, did the Society take up actively problems of pay, the introduction of a uniform retiring age, abolition of the right of licensed pharmacists to lease their pharmacies, and similar matters.

In 1915 the Society established a wage system based on seniority. The licensed pharmacist paid a basic salary to his pharmaceutical chemist employee, but increments according to age, etc., became payable through a special fund to which every licensed pharmacist contributed a fixed sum in respect of each employee, whatever his age. The scheme, unchanged in its essentials today, saved employed pharmacists from the risk of dismissal in favour of younger and less expensive assistants. The fund also pays sick benefit to pharmaceutical chemists, In 1918 a pensions scheme was introduced, which all pharmaceutical chemists, with few exceptions, must join. The pensions fund is augmented from public sources.

Dansk Farmaceutforening and Danmarks Apotekerforening contribute to and jointly administer an Unemployment Fund, out of which relief is paid to pharmaceutical chemists who, through no fault of their own, become unemployed. Relief may be granted for a period of up to three times five months. To improve conditions for pharmaceutical chemists who, at fifty, cannot become licensed pharmacists, a separate fund has been established through which elderly pharmaceutical chemists may, without any lowering of remuneration, reduce their weekly working hours by up to fifteen. An effect of the scheme is that licensed pharmacists gain financially by employing members total 1,200.

The Society publishes a weekly journal, Farmaceutisk Tidende ("Pharmaceutical Journal"), which has a weekly circulation of 2,200. It is sent to members, several licensed pharmacists, institutions, and others at home and abroad. A publishing department evolved as an extension of the journal. It has produced textbooks, reference books, and a year-book giving information about employment, reprints of Statutes, and statistics. Today the total capital of the Society is over Kroner 1½ millions. Out of the funds loans may be granted to needy members, or students assisted to attend Denmark's High School of Pharmacy. The Society possesses a library of 18,000 books, Danish and foreign, on vocational subjects, and a large collection of periodicals.

All pharmaceutical chemists entitled to work at Danish pharmacies are eligible for membership. Present active members total 1,200.

The highest authority of the Society is the general meeting. The Society's activities are directed by a national committee of seventeen members, ten of whom also sit on a "committee of delegates." The ten are elected on a geo-graphical basis, the other seven by the general meeting. The chairman, chosen from the executive committee, directs the daily business of the Society and does part-time work at a pharmacy. The executive committee meets at least once a month, and the national committee, as a rule, twice a year; the general meeting is held in May each year. Members of the committee of delegates are chairmen in their individual districts. They arrange professional and social meetings. An editor, a librarian and staff of seven (one a pharmaceutical chemist) do the daily work of the Society. The office staff keeps a record of the seniority of members for purposes of calculating salaries. Every month it sends a pay sheet to each of its members at the 350 pharmacies in the country, showing salary to be paid less deductions. When vacancies are to be filled, licensed pharmacists apply to the Society; so do pharmaceutical chemists wanting posts.

The Danish Pharmaceutical Society

THE Danish Pharmaceutical Society was established, largely through the efforts of the pharmacist Mr. Barfod, to promote the scientific and practical development of Danish pharmacy. That purpose has been pursued by the holding of regular meetings with lectures, minor communications and discussions, as well as by publication of a journal, Dansk Tidsskrift for Farmaci. Meetings are held monthly from October to April. Any pharmacist who by his work has demonstrated an interest in the Society's aims may become an ordinary member. Persons who are not pharmacists but who otherwise fulfil the requirements for membership may become extraordinary members. The Society is governed by a board of five members elected by general meeting. Principal officers for 1954-55 are: President: M. Tonnesen, Phar. Dr. (chief pharmacist, Bispebjerg Hospital, Copenhagen); Secretary: V. Steen Andersen, Ph.D. (assistant professor of chemistry).

FRANCE

The Academie de Pharmacie

By a decree of September 5, 1946, the *Société de Pharmacie* de Paris (Paris Society of Pharmacy) was transformed into the *Academie de Pharmacie*, guardian of scientific tradition in French pharmacy. Founded in 1803, the *Société* itself

replaced the Société Libre des Pharmaciens de Paris whose dissolution had just been decreed by the republican Loi de Germinal an XI (law of the month of Germinal, year X1 of the Revolution), substituting State education for the private education of pharmacists that body had previously undertaken.

At its foundation, the Paris Society of Pharmacy took as its object the improvement of the pharmaceutical art and the progress of allied sciences. The Society's renown extended rapidly outside its Paris centre of instruction, and a Presidential decree of 1877 declared it to be a public utility. It is fair to say that during the difficult first half of the nineteenth century its leaders adapted the calling to new times and gave it an impetus whose effects are still being felt.

In the process the profession underwent a revolution which progressively dissociated the practice of shop pharmacy from the preparation of medicaments, but the Society gathered within itself the practitioners exercising their art in shops and industrial laboratories, and pharmacists given over to research and chosen from teachers of pharmacy or hospital pharmacists. Thus the Society kept contact with the realities of the profession while assuring scientific progress. That is why it felt justified in seeking the status of an academy. Against obstacles the academy was founded, as already stated, in 1946.

The Society, promoted into an Academy, sees its authority strengthened and itself better fitted to examine every professional question submitted to it. Too much emphasis cannot be laid on the highly important rôle the *Academie* has played since 1946 in giving useful advice to the Minister of Public Health on numerous questions affecting pharmaceutical practice.

The Journal of Pharmacy and Chemistry amalgamated with the Bulletin of Pharmacological Sciences to become the Annales Pharmaceutiques Françaises ("Annals of French Pharmacy"), and the new organ has become the voice of the Academie.

The Academie de Pharmacie comprises members properly so-called, who achieve honorary status twenty-five years after their election; associate members (scholars known for their scientific works); national corresponding members likely to make known the scientific and professional work of professional colleagues throughout France; and a section of sixty foreign corresponding members.

The Ordre National des Pharmaciens Français

For a long time French pharmacists wanted an organisation capable of ensuring that pharmacists were honouring their professional responsibilities and to defend the honour and independence of the pharmaceutical profession. Pharmaceutical associations existed before the 1939-45 war, as they still do, but their function was and is to protect the material interests of pharmacy. Only in 1945 was there officially created an *Ordre National des Pharmaciens* (National Order of Pharmacists) with compulsory membership for all pharmacists in France and the French Union.

The National Order of Pharmacists comprises six sections:—

- A: Retail pharmacists.
- B: Manufacturing pharmacists.
- C: Pharmacists engaged in wholesale distribution.
- D: Hospital pharmacists, biologists and employee pharmacists.
- E: Pharmacists in overseas départements.
- F: Pharmacists in the Togo and Cameroon territories. Each section is administered by a central council, and section A is further divided into regional councils. At the head of the whole body stands the national council, made up of delegates from them all. The regional, central and national councils are each assisted by a magistrate, by professors of pharmacy, and by a representative of the Ministry of Public Health. All the pharmacist members of the different councils are there by election.



A memorable photograph taken during the fifteenth Assembly of the International Pharmaceutical Federation in Paris in 1953. In the group may be seen Dr. Potjewijd, Holland; Sir Hugh Linstead, Great Britain; Dr. Rene Fabre, University of Paris; Dr. E. Höst Madsen, Denmark; Monsieur Frank Arnal, honorary president of the Ordre National des Pharmaciens; and others.

The National Order of Pharmacists has a triple function:—

- 1. Disciplinary: Disciplinary panels of the Order sit in judgment on pharmacists who have infringed laws or regulations or committed ethical offences. Pharmacists found—or pleading—guilty may appeal from the decisions of first instance to the national council. On the other hand the Order can refuse to allow to remain on the register pharmacists whose ethical standards are unsatisfactory. The sanctions which the disciplinary tribunals may apply range from warnings to refusal of permission to practise.
- 2. Administrative: Each council of the Order is charged with keeping the register of all those pharmacists who come under its control and of verifying, in all circumstances, that legal formalities have been complied with.
- 3. Regulatory: A code of ethics drawn up by the National Order is already in operation. A code of disciplinary and a code of administrative procedures are due to be established.

Within the framework described, the different councils and above all the national council work in contact with the public authorities and Parliament in the drafting of every new law or regulation of interest to pharmacists.

Doctor Pierre Roland, president of the national council of the Order, succeeded Monsieur Frank Arnal, who is now its honorary president.

Union Fédérale des Syndicats Pharmaceutiques

The Union Fédérale des Syndicats Pharmaceutiques (Federal Union of Pharmaceutical Associations) is a coordinating organisation that groups into one federal body the following organisations:—

The Chambre Syndicale Nationale des Fabricants de Produits Pharmaceutiques (National Union of Manufacturers of Pharmaceutical Products).

The Chambre Syndicale Nationale de la Droguerie Pharmaceutique (National Pharmaceutical Drug Union).

The Fédération Nationale des Syndicats Pharmaceutiques (National Federation of Pharmaceutical Organisations).

The Union Nationale des Syndicats des Grandes Pluarmacies de France et d'Outre-Mer. (National Union of Associations of Large Pharmacies of France and Overseas).

Its offices are at 2 Square de Luynes, Paris, VIIe, and the present president is Monsieur Henry David; delegategeneral, Monsieur Yves Chabrol; and administrative secretary, Mlle. Madeleine Tocque.

The Chambre Syndicale des Fabricants de Produits Pharmaceutiques

THE Chambre Syndicale des Fabricants de Produits Pharmaceutiques (Association of Manufacturers of Pharmaceutical Products) will shortly have completed seventy-five years of existence, showing how early the need for professional solidarity was appreciated. At later dates other similar chambers were created.

In 1935, a *Union Intersyndicale* was created to unite all those various groupings. Today, a single comprehensive organisation unites virtually all French pharmaceutical manufacturers. There are close on 1,800 members in the *Chambre Syndicale*, and more than half of them are also retail pharmacists. Thus, from the most modest pharmacy to the most important industrial laboratory, every undertaking engaged in the manufacture of pharmaceutical specialities either is or is eligible to be a member of the *Chambre*.

The pharmaceutical profession depends on numerous Ministries: Public Health, National Economy, Work and Social Security, Commerce and Industry, Finances, etc. The Chambre's council of administration serves in all fields apart from ethical or disciplinary matters, which are the function of the Ordre National des Pharmaciens. The scope of responsibilities of the Chambre include:—

- 1. Commercial and taxation questions.
- Social questions (collective agreements, joint industrial council matters, etc.).
- 3. Export questions (grouping of manufacturers by country and agent; liaison with French consuls and *attachés* in all countries; negotiation of commercial agreements; organisation of a complete export library with up-to-date information about every market).
- 4. French Union questions.
- 5. Technical Service (with staff of technicians, giving assistance and advice to manufacturers on all problems relating to the specialities visa; advertising; enrolment on social medicine lists; the application of pharmacopœial standards, etc.). The service occupies a complete floor of the headquarters of the *Chambre* at 19 rue Picot, Paris.
- 6. Technical Documentation Centre (information relative to raw materials; processing, etc.).
- Scientific Documentation Centre (information to doctors in all countries about new French medicaments).
 - . Institute of Industrial Pharmacy. This gives instruction of an essentially practical character aimed at ensuring that young pharmacists pass painlessly from the high scientific training of the Faculty of Pharmacy to the daily necessities of the pharmaceutical industry. The instruction takes in technical publicity, chemical engineering technology, commercial questions, etc. Lectures are given at the Paris Faculty of Pharmacy; correspondence courses are organised for students not resident at Paris.
- Centre of Technical Preparation of Medical Visitors (hands on theoretical and practical information to satisfy medical visitors that the moral and professional standards sought by the Medical Corps are

- forthcoming; the service has been very favourably received).
- 10. Institute of Pharmacotechnics and Pharmacodynamics of the Faculty of Pharmacy of Paris. This "higher school for research workers," unique in the world, enables certain pharmacists, selected from among the most brilliant students of the Faculties after severe competition, to gain a mastery of the techniques appropriate to pharmaceutical research. Under the overall direction of the Dean of the Faculty, and the effective control of eminent professors, the training leads to the award of two certificates of higher-level studies.

The Cliambre Syndicale forms an integral part of the Union Fédérale des Syndicats Pharmaceutiques (see above). It is constantly in communication with the Medical Corps and with medical groups (whose interests are often found closely bound to those of pharmacy). It is in friendly and linked relations with medical journals; in constant and close liaison with the Union des Syndicats des Annonceurs.

The Chambre Syndicale Nationale de la Droguerie Pharmaceutique

THE Syndicat Général de la Droguerie Pharmaceutique Française (General Pharmaceutical Drug Association of France) was founded in 1908. Since 1945 it has brought together under the style Chambre Syndicale Nationale de la Droguerie Pharmaceutique (National Pharmaceutical Drug Association) the interests of an important section of the profession. On the one hand it caters for providers of raw materials to manufacturing laboratories; on the other for those who act as intermediaries between manufacturers of medicinal specialities and retail pharmacists selling to the public. Within those categories fall manufacturers of pharmaceutical drug products; makers of compounded pharmaceuticals, biological and chemical products (and generally all products and accessories used in pharmacy other than non-pharmaceutical requirements); makers of veterinary pharmaceuticals; importers, druggists, and distributors engaged as merchants or agents in the importation or resale of raw materials, botanicals, drug, chemical, pharmaceutical and hygienic specialities; representatives; brokers.

The Clambre aims, like every professional organisation, to facilitate relations between members and strengthen common bonds of interest; to provide a centre at which economic and social questions are studied; to protect the professional, material and moral interests of its members; to propose to the authorities, and to help bring about the enactment of, measures considered opportune for the industry.

The somewhat heterogeneous character of the *Chambre* has brought about the formation of several professional sections: makers of galenical products; of prepared pharmaceutical products; of biological products; and of veterinary pharmaceuticals; distributors of pharmaceutical specialities; importers.

The committee of management carries out the measures decided upon in general meetings, and takes the necessary action with the public authorities and representative organisations. It decides on the priority to be given to propositions put forward by a section or committee.

The Chambre works with other trade associations, either by direct contact or within the Union Fédérale des Syndicats Pharmaceutiques.

The Fédération National des Co-operatives Pharmaceutiques de France

THE Fédération National des Co-operatives Pharmaceutiques de France, founded in 1925, brings into one trade body the associations of distributors whose essential function it is to supply promptly to proprietor pharmacists the medicaments, proprietary or not, which the industry manufactures. These channels of distribution are either co-

operative societies (under the laws governing commercial co-operation), or limited companies, all of whose shareholders are practising pharmacists. They thus derive directly from retail pharmacy and are effectively controlled by it. The undertakings united within the Fédération together provide uniform and complete distribution throughout metropolitan France and Algeria. The various undertakings, totalling twenty-seven, give a regular service to 13,000 retail shops. Their turnover in 1954 exceeded 45 milliards of francs (£45 millions). The Sempex catalogue, published annually under the auspices of the federation, mentions 18,000 different specialities which wholesalers are expected to keep in stock. In getting into pharmacists' hands the innumerable products in the therapeutic arsenal, many technical problems have to be solved. Most of the member firms of the federation are equipped with the most modern systems of handling merchandise, with an array of modern vehicles, and with the most advanced accounting systems.

The Federation sets itself to co-ordinate the actions of its adherents in commercial matters, to give information on scientific, economic and social matters, to defend them in their dealings with the public and administrative authorities, and to contribute to the general interest of the profession. The federation's office is at 13 Rue Ballu, Paris. The president, since 1938, has been Monsieur Pierre Chareyron.

GREECE

In Greece pharmacists belong to one of a number of regional pharmaceutical associations established by law. The associations have the functions of ensuring pharmacists' compliance with the law, defending the profession against attack, and promoting the development of pharmaceutical knowledge. They also provide assistance to pharmacists and their families in need of help.

The Associations are empowered to take disciplinary measures against members (for example, when drugs are sold that do not conform with official standards).

The regional pharmaceutical associations belong by law to the Panhellenic Pharmaceutical Association, which in general represents the profession in all matters that are its concern. The Panhellenic Association has the general supervision of all the provincial associations. It also participates in the Central Health Council of the country and the Drug Prices Committee. It has corporate status before the law.

ISRAEL

The Pharmaceutical Association of Israel

THE Pharmaceutical Association of Israel was founded in Jerusalem in 1921 under the name Palestine Pharmaceutical Association. Today the Association has about 800 members, both employers and employees. They are organised into two sections. All pharmacy owners (about 250) with but few exceptions, are members of the Association; so are all pharmacists employed by private, government or other public institutions. The Association supervises and controls Geha, a co-operative wholesale organisation of the pharmacy owners. It also promoted the establishment of Taro, a pharmaceutical manufacturing company financed by Israel and American shareholders. The Association lends its help to the pharmacy department of the Health Ministry, and works in full co-ordination with the Government officials. It publishes a bi-monthly journal The Hebrew Pharmacist in Hebrew, with summaries in English, and sends the journal to all known pharmaceutical societies in Europe and America. The executive functions of the organisation are carried out by a central committee elected at bi-annual conferences, and locally by elected committees. With the financial and moral help of the Association the first pharmacy school in Israel was opened two years ago at the Hebrew University in Jerusalem. The Pharmaceutical Association of Israel is a member of the Fédération Internationale Pharmaceutique and participates in its congresses.

ITALY

The Federazione Ordini Farmacisti Italiani

THE Federazione Ordini Farmacisti Italiani (Federated Order of Italian Pharmacists), 1 Via Giambattista Vico, Rome, was instituted by presidential decree on September 13, 1946. It is governed by a central committee composed of thirteen members, who are elected every three years by the presidents of the provincial orders of pharmacists. The central committee elects from its own members a president, secretary and treasurer. The president convokes and presides over the central committee and over a national council composed of the presidents of the provincial orders. The functions of the central committee are to protect, on a national scale, the dignity and independence of the profession, to co-ordinate and promote the activities of the provincial orders and national movements for the cultural progress of pharmacists; to appoint representatives on organisations of a national or inter-provincial character; to give assistance to the authorities in developing and bringing into effect measures that may in any way interest members; to find formulas for settling controversies between member and member, or between members and other persons or bodies over remuneration or other questions; and to exercise disciplinary powers. Against disciplinary measures taken there is an appeal to the Central Commission for Practitioners of the Medical Profession constituted by the High Commissariat of Public Health and Hygiene. Of that body five members and three deputy members represent pharmacists. All are nominated by the Federation.

LUXEMBOURG

In the Grand Duchy of Luxembourg there are two pharmaceutical organisations: the pharmaceutical section of the Grandducal Institute of Medicinal Science of Luxembourg,



founded to stimulate the study of medicaments, the art and the history of pharmacy; and the *Syndicat des Pharmaciens Luxembourgeois* (Union of Luxembourg Pharmacists), Founded in 1900, the *Syndicat* was reorganised in 1933. Its object is to protect the material interests of its members. The Luxembourg Government has set up a commission charged to establish an *Ordre des Pharmaciens* that will be responsible for the ethics and discipline of pharmacists in the Grand Duchy,

NORWAY

The Norges Apotekerforening

Norges Apotekerforening (the Association of Pharmacists in Norway) was founded on May 16, 1881. It includes all



licensed holders of pharmacies, and some managers, to a total of about 300. The Association is divided into ten districts each with a local association, and the local chairmen, with the executive committee, form the headquarters management of the Association. The executive committee consists of five members, elected every two years by general meeting. From among those five members the president and vice-president are in turn elected.

The Association has its headquarters in its own house in Oslo. Offices occupy one floor. On the floor above is a testing laboratory (NAF-Laboratoriet). The Association works in close contact with the Ministry of Social Affairs, which has the supreme management of the pharmaceutical profession in Norway. It is represented on an advisory committee for giving authorisations to be the holder of a pharmacy, and in a consultative committee on bankers' advances to pharmacies. About 400 local depôts for the sale of packed medicines and surgical supplies are controlled by local pharmacies. The Association has also the task of training technical staffs of pharmacies by the aid of postal courses. The qualified staffs of pharmacies are educated at the Pharmaceutical Institute, University of Oslo, in a four-and-a-half-year course.

The Association also acts as an employers' union, and holds tariff negotiations with the Pharmaceutical Union of Norway (pharmaceutical employees) and with the union of the technical (non-pharmaceutical) employees. In collaboration with the Ministry of Social Affairs the Association has drawn up a pension scheme for the profession and that has been worked out and put into effect. The scheme is not yet entirely satisfactory, and work on it continues. The Association has its own collective sickness insurance service, and disposes of several larger relief funds. Continuous work is done on proposed legislation and regulations (for example, on the issue of free samples of medicines, discounts, purchase tax on medicines, illegal distribution, professional secrecy, the State monopoly in the wholesale trade, etc.).

The Association collaborates closely with pharmaceutical organisations in Denmark, Sweden and Finland, and the

four presidents, with their general secretaries, come together every year to discuss questions of mutual interest.

The Test Laboratory already referred to is administered by a professional committee of six members, elected by general meeting for two years at a time. The committee issues a pharmaceutical Codex (NAF-boken) which is in every Norwegian pharmacy and contains formulas of non-official galenical preparations, preparations for cosmetic and technical use, and reagents for medical-chemical tests. The committee prepares and issues the Norwegian edition of Codex Med. Scandinavicus, containing monographs on non-official drugs. The committee prescribes the wrappings, packings and tablets to be used for dispensing preparations in the NAF-book, thus securing uniformity in all Norwegian pharmacies. The committee deals with and decides all questions of prices not subject to government decision. It is also responsible for issuing the necessary price-lists.

The committee has established a sample test control of preparations made in pharmacies. Results of assays are reported back to the pharmacies. The committee is responsible for publicity to increase the sale of preparations made in pharmacies (publicity to doctors, veterinary surgeons, pharmacists, technical assistants and the public). Medicines made in pharmacies are advertised in the medical and pharmaceutical Press and in weekly and daily papers. Booklets are distributed to doctors and pharmacists. A special collection of formulas is published by the Association for the use of medical men throughout the country.

The staff of the analytical laboratory of the Association comprises four Bachelors of Pharmacy and two technical assistants. The president is at present Mr. Chr. van der Lagen; Chairman of the professional Committee is Dr. Carl Stousland; the secretary-general, Mr. Leif A. Brendl, and the head of the Laboratory, Mr. Toralf Stokke, B.Ph.

The Norsk Farmaceutisk Selskap

The Norsk Farmaceutisk Selskap was founded on May 6, 1924, the initiative in its formation having been taken by Mr. J. A. Brendel, its driving force during its early years. The purpose, as laid down in paragraph 1 of the by-laws, is the promotion of Norwegian pharmacy—both scientific and practical—and the strengthening of co-operation within the profession. From the start, interest in the Association was widespread. The number of members has steadily increased, and the activities have extended, with several subsections started. Today the association has over 500 members. Especially during the German occupation, 1940–45, its activities were of great importance.

In 1930 the sixth ordinary general assembly resolved to set apart funds to cover the expense of awarding a gold medal for the best answer to one or several problems that might contribute to the progress of Norwegian pharmacy. The awards are made every third year, the first gold medal

having been given to Olaf Weider in 1936.

In 1938 the association took the initiative in arranging an annual "Day of Pharmacy" in Norway, and in 1948 instituted a scholarship fund to further Norwegian pharmaceutical science—a measure that has contributed to raising the scientific level of Norwegian pharmacy. The prime mover during the war and up to 1949 was Consul-General Arne Ørvig. At present the chairman is Apoteker Nic. Aa. Sverre.

At present the chairman is Apoteker Nic. Aa. Sverre.

The series is being continued in future issues.-EDITOR.

ECHOES OF THE PAST

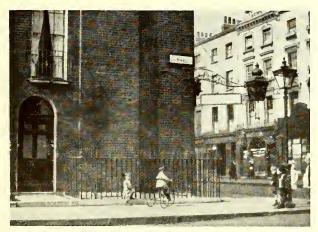
A GRAND SPECIFIC

From Every Man's Magazine, September 1771

Wood honey-suckle in any form, as flower, herb, or root in winter, taken as a medicine by way of decoction, or binder, or both; of the flowers eat raw, as sage on bread and butter, is a grand specific against the bite of a mad dog. It may be given either green or dry in milk, or by way of tea twice a day. No regular dose, nor any strict regimen is needful to be observed. This excellent plant is called caprisolium, wood bind, and matrisylva also, whence I cannot be mistaken.







Entrance to 21 Upper Montagu Street.

One of three shops that have preserved the "village" character of a populous quarter of London's West End for 140 years is the pharmacy of Meacher, Higgins & Thomas, Crawford Street.

By PERCY JOHN WHITE, M.P.S.

JUST behind the Town Hall of the borough of St. Marylebone, London, Crawford Street joins Baker Street to Edgware Road. In this street, which is well known for the number of its antique dealers, is the old-established family chemists' business of Meacher, Higgins & Thomas.

The shop, which is on the corner of Crawford Street and Upper Montagu Street, forms part of a shopping centre that has retained much of the intimate character of a village street. Above it is a three-storied house with private entrance round the corner, so that the owners have for generations appeared in the local directories as chemists at 105a Crawford Street, and as private residents at 21 (formerly 26) Upper Montagu Street. On the old labels of "Meacher & Higgins," the address is variously qualified as Montagu Square, Bryanston Square, Baker Street or Portman Square. Actually the premises lie just north of Montagu Square and were, until recently, part of the Portman Estate. A feature of the front of the house is its set of three bricked-up windows—a relic of the days when the window tax was imposed.

From the rate books it appears that the earliest occupiers of 26 Upper Montagu Street were Bartholomew Parker, 1814–21, and George Sampson, 1821–28. Pigot's London Directory of 1822–23 lists the firm of Parker & Sampson

at 105a Crawford Street, but does not say what trade they carried on. The next resident at 26 Upper Montagu Street with a business in Crawford Street was Henry Tindale (or Tyndale) who described himself in 1828 as a *dentist* and in 1830 as a *chemist* so that, presumably, he practised both professions, as many did at that time. Tindale's name is shown in the reference books up to 1859, proving that he was in practice for at least thirty years, and perhaps longer.

He was followed by Thomas Meacher, who described himself on his labels as "Meacher (late Tindale). Operative and Dispensing Chemist. Established 1814." Meacher in turn was succeeded by James Higgins, the first of the chemists of Crawford Street of whom much is known. Providentially for the historian, Higgins had a passion for pasting documents in the end-papers of his prescription books. Price lists, newspaper cuttings, licences, and notes of all kinds give a fascinating clue to his character and much information on the prices obtaining at that time. Among the price lists of 1890-1900 are those of Chesebrough, Meggeson, Allen & Hanburys, and Friedr. Bayer & Co., Elberfeld, Germany, the forerunner of I. G. Farbenindustrie. There is also a manuscript list of prices of drugs and instruments charged to a nursing home in Devonshire Street, including "Leeches-Best Speckled at 4s. doz."

James Higgins was born in 1839. He was an orphan and was brought up by a farmer in Montgomeryshire. It is noteworthy that, from the time Higgins took over the business until the present day, each successive owner has been of Welsh extraction, a fact that gives rise to speculations whether Tindale and Meacher, too, had come from across the border.

Higgins was an energetic and astute tradesman typical of Victorian London (he survived for only a few months



Mr. Gwilym Thomas with an assistant at the door of the pharmacy.

into Edward VII's reign). He made a reputation for himself as a prescriber, and one of the local residents—who died many years ago—described how the carriages would queue up in Crawford Street while their owners waited to consult him. A human sidelight on Higgins' love of his craft is a newspaper cutting headed "The King's Sympathy," in which is described the concern of Edward VII for a housemaid at Marlborough House who was taken ill suddenly and operated on by the King's physician. The cutting proudly bears a handwritten note: "Physic from Meacher & Higgins."

The business expanded rapidly, and evidence of its prosperity is found once more in the back of the prescription



An oil painting in the possession of Mrs. Thomas.

books of 1898 and 1899, where there are receipts for the ground rent of 18 Alfred Place, South Kensington, and 4 Upper Montagu Street. Higgins also took an interest in the gold-mining boom of the period. There is a dividend notice of the Bechuanaland Exploration Company, and a report on the Goldfields of Mashonaland announcing that: "... hostilities having now ceased, the erection of machinery at the Cotopaxi and Alice mines has commenced." A map of the scene of operations in the Matabele war, pasted into the same book, suggests that the proprietor of the business was worried about his investments in the area.

Higgins kept two dogs and his own carriage. The licences for them, dated 1892, had been issued by G. E. Chew, who owned the grocer's shop and sub post office opposite. That business, which was established by Thomas Chew at least as early as 1830, is still a grocer's and sub post office. The baker's shop at 105 Crawford Street was also in existence in 1830. Those three shops, the chemist's and the baker's next door to one another, and the grocer's across the way, have carried on the same trades on the same premises for over 120 years without interruption.

In the Nineties the inews behind Montagu and Bryanston Squares, which are now the homes of stars of the stage and screen, were occupied by the horses and coachmen of the nobility. What was more natural than that Higgins—who not only kept his carriage but rode regularly in Hyde Park—should establish a reputation as a veterinary chemist? His recipe book is full of his own formulas for fever drinks, tar cough-balls, worm powders and ointment for greasy heels. An unexpected cutting from a newspaper is headed "Females and Games." Higgins probably kept it because he had four daughters. They were known as keen workers for the local church in Wyndham Place, and one of them married Higgins' assistant, Mr. Chesterfield, who later had his own pharmacy at Gillingham in Kent.

The Customers

During the nineteenth century the three squares, Portman, Bryanston and Montagu, were inhabited by members of the aristocracy who needed a town house within easy reach of Buckingham Palace and the West End, and by a fair sprinkling of poets, painters, architects and novelists. The houses in Gloucester Place and the Squares bear many of the pale blue plaques erected by the London County Council to commemorate those "who have made a major contribution to the happiness or welfare of humanity, or to the Arts and Sciences."



Mr. and Mrs. James Higgins.

Naturally those names are reflected in the prescription books of the business, and in that of 1893—to take one at random—are to be found the names of the Earl and Countess Waldegrave, Mrs. Campbell Bannerman, and Mrs. Barrett Browning (daughter-in-law of Elizabeth, who lived in Gloucester Place and stayed in Crawford Street in 1838 just before the family moved to Wimpole Street). While the householders are given their rank and titles in full on their prescriptions, their children and servants, like their dogs, remain anonymous. Thus we have—from the same book—Mrs. Kempston's Infant, Lady Emily Williams' Butler, and Lady Pollock's Maid. The exception is "Mr. Walter White, Footman at 3 Bryanston Square."

As a result of the 1939-45 war many of the famous families have moved away from the houses they lived in from one generation to another. Their houses have been divided into flats, and are now occupied by professional men and women who find it convenient to live within easy reach of the West End. A large number of today's customers are famous figures on the stage and screen and feature in B.B.C. programmes as artists or script writers.

In the second half of the nineteenth and beginning of the twentieth centuries, it was the custom of rich people in England to employ a German governess for the children, just as, on the continent, private education was given by "the English Miss." The custom was certainly due to the close ties of the Royal Family with Germany. In a district such as Marylebone, with a high percentage of aristocratic families, these ladies were much in evidence, and inevitably came to "Meacher & Higgins" for their medicines. There is a note in the prescription book of 1892 that "The Association of German Governesses" of 16 Wyndham Place (a turning off Crawford Street) should be allowed a discount of 20 per cent. from the cost of their medicine. That led to trouble after Higgins' death, for, ten years later, in December 1903, there is an indignant letter from the Association querying a bill: "I find

various bottles of medicine in the bill which were for ladies living here for a time. Please bear in mind that medicine for our Association is always prescribed on paper like the one I write on."

In the front cover of the 1894 prescription book is a long newspaper cutting headed "A Message for Fat People." It is by Professor Schweninger, Prince Bismarck's protégé and private medical adviser. He handles his subject with Germanic attention to detail, as is evidenced by the quotation: "As to the causes that produce embonpoint, Professor Schweninger holds that they are legion . . . but by far the most effective cause is eating and drinking."

James Higgins' Recipe Book

James Higgins' recipe book is still part of the goodwill of the business, though only one or two of his preparations, such as Higgins' Eau Dentifrice and Higgins' Hair Restorer are still sold under the original names. Most of the formulas are the traditional ones found in all old recipe books. They include violet pomade, children's soothing powders (were children less susceptible to mercury in those days?), plate powder, and snuff.

There is a subtle difference in the formulas for "Liniment for Club Patients" and "Liniment for Good Patients" comparable to that between the violet powder, "best," and "violet powder for penny boxes." But the main interest lies in the style of the labels. The "Infant's preservative . . will be found peculiarly efficacious in all the disorders to which children in the earliest period of their infancy are so distressingly liable."

YANATAS—"You Are Now Able To Avoid Seasickness"—has a "Royal Testimony" on the back of the label: "Her Imperial Majesty the Tzarina of Russia (Princess Alex of Hesse), Her Imperial Highness the Grand Duchess of Russia, and her Royal Highness, Princess (illegible) of Prussia have found Yanatas a perfect remedy for sea-sickness. Many of the members of the Royal Families of England and most other European countries, have used Yanatas with the same result."

One of the earliest entries in the book is "Higgins' Specific for Cholera." This is a relic of the great cholera epidemic of the 1850's. Marylebone was sadly affected by this epidemic, caused by the shocking sanitary conditions at that date. Even the great houses in the squares drew their drinking water from the polluted water of the Thames contaminated by the sewage from the great houses themselves. Higgins "Specific" consisted of equal parts of Spt.



The four children of Richard Thomas. The boy became in adult life a house surgeon at St. Bartholomew's Hospital.



Labels and other items of stationery associated with the business. Note variations in the address.

Chlorof; Ess. Menth. Pip; Tr. Zingib. Fort.; Tr. Capsici; Tr. Opii and Spt. Ammon. Aromat.

James Higgins died on October 31, 1902, at the age of sixty-three. The *Pharmaceutical Journal* records that he "... died suddenly after officiating as foreman of a jury at the Marylebone Coroner's Court—from rupture of a blood vessel on the brain."

An entry in THE CHEMIST AND DRUGGIST (June 6, 1903) reveals that probate of Higgins' will was granted to his wife, Matilda, in the sum of £4,565 1s. 9d. Not a bad sum in those days for a man who started life as an orphan!

Higgins was followed by Arthur Howell Rees. Mr. Rees qualified in 1898, at which date he lived in Neath, Glamorgan. He came to Crawford Street in April 1903 and lived with his mother and sister above the shop. Those who came after him blessed his foresight in building an extension of the premises to house a bathroom. He was less successful than Higgins had been, and gave up the business for financial reasons in July 1908.

The next owner of "Meacher & Higgins" was Richard Thomas, Ph.C. Thomas was a son of the master of the Union (the Welsh equivalent of the workhouse), Machynlleth, Montgomeryshire. He qualified as a chemist and druggist in 1885 and took his major examination the next year. He owned shops in Upper Baker Street, Marylebone High Street and Blandford Street. When he purchased "Meacher & Higgins" in 1908 he came to live at 26 Upper Montagu Street, but the shop was managed by his younger brother, Thomas Thomas, who qualified three years earlier in 1905.

Richard had three daughters and a son. The boy, who was educated at the Marylebone Grammar School, became a doctor, as did two of his sisters. Richard's wife, son and two of his daughters all died of tuberculosis within a short time of each other. His surviving daughter married a Harley Street surgeon.

Richard Thomas had as assistant at his Upper Baker Street shop a young pharmacist, Gwilym Thomas of Anglesey. In 1911-12, Gwilym Thomas had been a student at Bloomsbury Square, where he obtained a certificate of honour in practical chemistry. He qualified in 1912, and in 1913 took over "Meacher & Higgins" from Richard Thomas, later changing the name to its present style of "Meacher, Higgins and Thomas." Gwilym was a worthy successor to James Higgins, and once more the shop enjoyed a long period of prosperity attributable to the personality of its owner. To this day customers often recall acts of kindness he did for them in the years between the wars. Gwilym Thomas was a keen Freemason and well known to his brother pharmacists in the West End of London. For ten years he was social secretary to the Western Pharmacists' Association; he held the office of chairman of the Branch and president of the Association during 1933 and 1934.

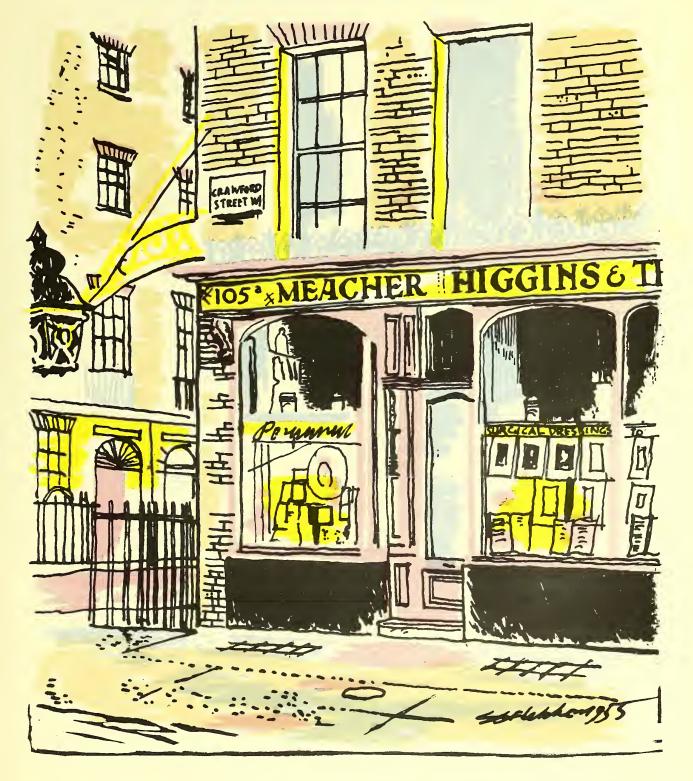
On March 5, 1929, Mr. Thomas signed a "treaty" with Dr. Rössler's Hofapotheke in Baden-Baden, by which he became the sole agent in this country for the German pharmacy's famous "Black Forest Pine Needle Preparations." Contact was, of course, lost during the war, but a few months ago the pharmacy had a visit from Herr Rolf Rössler, himself a pharmacist and grandson of the original Dr. Rössler.

Gwilym Thomas died in 1940, and during the war years the shop was managed for his widow by his assistant, Howard Evans, now in business at Esher.

In 1951, Gwilym's youngest son, Ivor Thomas, qualified as a pharmacist. After a stay in Canada and America, where he has been studying transatlantic pharmacy, Ivor recently returned to this country.

Thus for nearly a century and a half the business has remained in private ownership.

PHARMACIES OF BRITAIN—36



THE PHARMACY OF MEACHER, HIGGINS & THOMAS, LONDON, W.1

The Crawford Street, Marylebone, pharmacy now styled Meacher, Higgins & Thomas has had an interesting history that is outlined in an article in this issue.

1

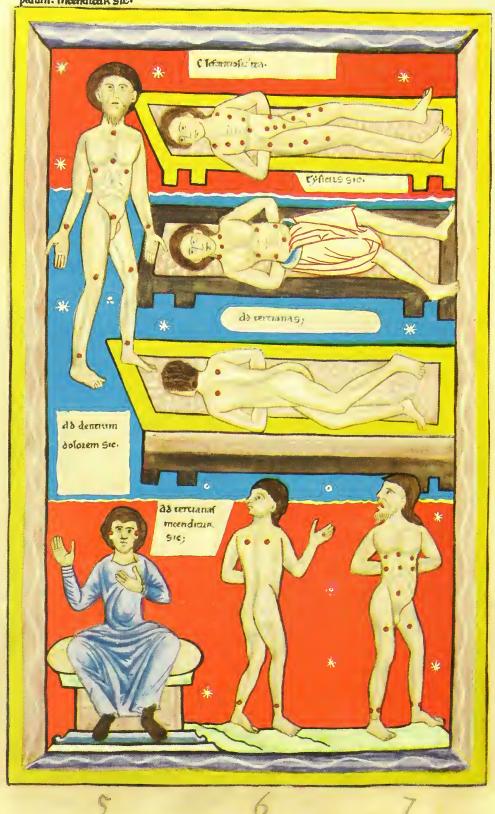
jdrope

eus!

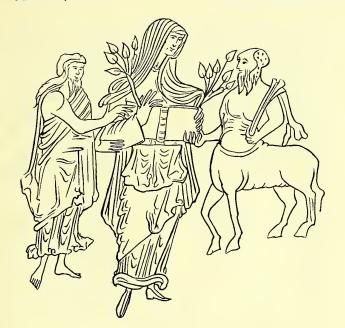
ra;

The dolorem captul fullamonem pedout.

padum. moenduma sic.



Page of medical manuscript written in Eigland about 1130 A.D. It shows the points used for cauterisation in seven named conditions. They are detailed thus: 1. Ad dolorem capitis et inflationem pectoris, et manuum. geniculorumque torcionem et pedum. incenditur sic. "For pain of head and inflation of chest and for cramps of hands, knees and feet, he should be cauterised so." 2. Elefantiosi ita. "[Those with] elephantiasis thus." 3. Tysicus sic. "A phthisic so." 4. Ad tertianas. "For tertians." 5. Ad dentium dolorem sic. "For pain in the teeth so." 6. Ad tertianas incenditur sic. "For tertians he should be cauterised so." 7. Ydropicus ita. "The dropsical thus."



MEDICINE IN ANGLO-SAXON TIMES

by Charles Singer

OST of what we know of medical and allied magical practice in Anglo-Saxon times is based on about thirty manuscripts. These represent about half that number of separate texts, several of which are, however, of considerable length.

It is often said that in those days the only people who could read and write were monks or clergy. This cannot be quite true. In the year 883 King Alfred circulated among his bishops his famous letter on education, which

"It seems good to me that we should bring it about—as with God's help we easily can, if we have peace—that all children now in England be set to study until they can read English. Further teaching in the Latin language should be given those whom we may wish to instruct further and place in a higher office."

This attempt of the good king can hardly have been without any effect. The medical manuscripts themselves provide evidence for this, some of which we shall presently consider.

Of these manuscripts the best written, and those that are illustrated, are certainly monastic work. The most beautiful of all, executed about the year 930, has been traced to the scribal school of Winchester. It was long in the monastic foundation of St. Augustine at Canterbury. Like most of the others, it consists mainly of herbal recipes for various symptoms. The figures are of the herbs recommended. The text, like several others in the Anglo-Saxon medical repertory, is a translation of imported Latin material of South Italian origin. A sister manuscript to it, derived from the same source, survives to this day at the monastery of Monte Cassino, not very far from Naples. The contents of this remarkable Anglo-Saxon document go back to pagan classical originals. The illustrations show no Christian sacred figures but contain representations of such mythical beings as Aesculapius, the Graeco-Roman deity of healing, the wise Centaur Chiron, who, in the legend, taught his art to Aesculapius, and even the pagan god Apollo, whose pagan nature is concealed under the name "Apuleius" (titlepiece and fig. 2).

Such texts, though written in monasteries, were intended for use by those skilled in leech-

craft, but not necessarily for monastic practitioners. In one monastery, to which Anglo-Saxons resorted as early as the eighth century, accommodation was provided not only for a resident leech but also for a dispensary, a sanatorium and a herb garden (fig. 3). All the plants there named were in common use by leeches in England.

Information as to the status and knowledge of the Anglo-Saxon leech of the ninth century and earlier is very scanty. For the succeeding period we are a little better informed. There are several Anglo-Saxon medical manuscripts of the tenth to the twelfth century that certainly were not written in monasteries. They contain much magical material and many pagan charms, including some invoking the Northern pagan gods and even naming Thor

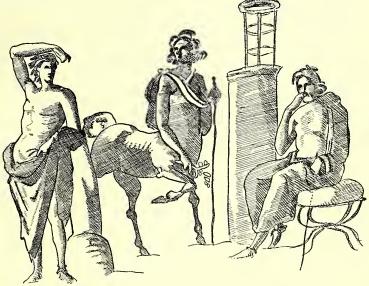


Fig. 2. Mural painting at Pompeii of about 50 A.D., showing association of Apollo (left), Chiron the wise centaur bearing a medicinal herb, and Aesculapius, god of healing. With it should be compared the illustration forming the titlepiece of this article, a group from an Anglo-Saxon leechbook, written about 330 A.D. by the Winchester scribal school and once at Canterbury. The figures from left to right are marked PLATO, ESCULAPIUS and CENTAURUS. "Plato" stands for Apuleius Platonicus, the name Apuleius being a Christian substitute for Apollo. He receives a book from the other two.

and Woden, which could not have been tolerated under monastic conditions. There are also recipes for the treatment of women in childbirth, and rituals for which the presence of a priest is demanded, which would hardly need emphasis in a monastery.

There are certain magical passages in Anglo-Saxon medical manuscripts which, though of Christian origin, are not from rituals of the Roman Church—to which, of course, the Anglo-Saxons adhered—but of the heretical Celtic Church. The Celtic formulas differed greatly from those of

the Roman Church, though both used the Latin tongue. There are yet other charms and formulas which are of Greek origin. These are easy to explain, for some of the early missionaries to the English tribes were native Greek speakers. The Eastern, Orthodox, or Greek was as yet not formally separated from the Western, Catholic, or Latin Church, and the Eastern Empire, with Byzantium as its capital and Greek as its language, was still by far the wealthiest state in Christendom.

Pagan-cum-Christian

Thus the medical documents in Anglo-Saxon, or in debased Latin or, more often, in a mixture of the two, have a very varied origin. They contain ancient Pagan lore of Anglo-Saxon, Celtic, Latin and Greek origin; they contain Christian material from the practices of the Greek, Roman, and Celtic Churches; and they contain mixtures of all these in various proportions.

In the manuscripts there are several pictures in which a leech is portrayed. He is never shown as tonsured and therefore cannot have been a monk. Most of these figures are copied from classical originals, as is shown by their costume (fig. 4), but a few wear the dress of their own day (figs. 5-6). We know, on other grounds, that there were some lay medical practitioners in Anglo-Saxon England, but they must have been few for a professional leech can make a living only where population is fairly dense. There were only about half a dozen towns of any size and roads were non-existent outside them, so that practitioners must have been confined

to such centres as Winchester, Exeter and York or the largest monastic settlements.

The remedies of the Anglo-Saxon leech were basically herbal, but many substances of animal and a few of mineral origin were included. Some of the remedies were extremely disgusting. Theoretical knowledge is conspicuous by its absence. The most extreme forms of polypharmacy were practised. Most of the drugs were without physiological action but some of the physical methods, notably baths and the application of heat, certainly had beneficial effects. A few drugs were imported but 99 per cent. were native.

Of the pagan literary sources the most considerable was

the De materia medica of Dioscorides, a Greek-speaking army physician of the time of Nero. His work was translated into Latin by the fifth century. It became very popular, especially in combination with the work of "Apuleius" to which we have referred. Some of the drugs that Dioscorides described are still in the British Pharmacopæia. The illustrated Anglo-Saxon version of Dioscorides and Apuleius has figures of many of the plants recommended. Had we not known, on other grounds, that this version with its figures was a copy of a South Italian

original, these figures would have revealed that fact, for some of them portray not British herbs but allied species from the Mediterranean region (figs. 7 and 8).

Apart from herbal medicines, the early English documents contain many pagan magical practices of Greek, Roman or Northern origin. Very common are so-called "Pythagorean" formulas. These ascribe a special significance to numbers, mostly of days in the lunar month. This fancy appears repeatedly in diagrams illustrating the calendar, notably with reference to the

fancy appears repeatedly in diagrams illustrating the calendar, notably with reference to the supposed effect of the day-number of illness. That they came from a Greek-speaking source is shown by certain of them using corrupt Greek letters (fig. 9). The most elaborate "Pythagorean" circle, written at Glastonbury about 970, is attached to a table of lucky and unlucky days. It was bound up about 1070 in a very small volume of masses in use at Exeter. Such missals would be used in visiting the sick. The circle, by pre-

dicting the patient's chance of

would

whether and when a priest

should administer the rite of the

determine

donuf the ar ma pig men tox mansio medici ipsius

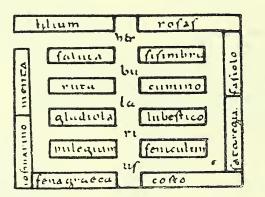


Fig. 3. Quarters for the sick at the Anglo-Irish monastery of St. Gall in Switzerland, from a plan of 830 A.D. still in the monastic library. Above is a "ward for acute cases," cubiculum valde infirmorum. Below it is a reception room and surgery, i.e. the doinus medicorum, and a "drug store," arma (menta) rium pigmentorum. Below these is the leech's residence, mansio medici ipsius. Outside is a "herb garden," herbularius, containing sixteen beds for named herbs, all of which are used in the Anglo-Saxon leechbooks.

A Remarkable Survival

recovery,

dying (fig. 10).

A most remarkable survival is a purely Pagan prayer that had become embedded in a Christian setting in very early times. It consists of an invocation to the goddess "Mother Earth," and survived in England until after the Conquest. Part of it may be translated as follows:

"Earth, Divine Goddess, Mother Nature, who generatest all things and bringest forth anew the sun which Thou hast given to the

peoples; Thou Guardian of Air and Sea and of all gods and powers; through thy power all nature falls silent and then sinks in sleep. And Thou again bringest back the light and chasest away night, and yet again Thou coverest us most securely with Thy shades. Thou dost contain chaos infinite, yea, and winds and showers and storms. Thou sendest them out when Thou wilt and again, when Thou wilt, Thou sendest forth joyous day and givest the food of life with eternal surety. And when the soul departs, to Thee we return. Thou art indeed called Great, Mother of the gods. Goddess, I adore Thee as Divine."

This is none other than a prayer to Mother Nature used by adherents of the philosophic sect known as Stoics,



Fig. 4. A haloed figure in classical dress blessing the herbs in the name of the earth goddess. From a Latin MS of English provenance of about 1100 A.D.

which was the prevailing religion of educated Romans in the second century A.D. For them Nature was nearly equivalent to deity. The "Divine Mother" had been mistaken by the Christian scribe for the Virgin Mary. To this prayer is attached the picture of a being in classical dress blessing the earth. He has been equipped by the artist with a Christian halo! (fig. 4).

There are only two contemporary personages that identifiable in are Anglo-Saxon medical texts. One of the Leechbooks gives a group of recipes which "Dominus Helias, Patriarch of Jerusalem, ordered to say to King Alfred." In Alfred's time, Jerusalem was in Moslem hands and its Greek bishop, Elias III, who was in office 879-907, was sending begging letters to Western rulers for financial help for the churches of the Holy Land. The recipes of Elias were perhaps in return for such favours as he hoped to

receive or had received. "For apparitions and delusions" Elias recommends "smearing with balsam; for one whose speech fails, petra oleum and a cross marked under his tongue; for a man out of his wits, petra oleum again and a cross on every limb; for inward tenderness, tyriaca." This is the first mention in English of petroleum and of tyriaca.

Petroleum is the pittasphaltos of Dioscorides, identical with bitumen judaicum, "Jewish pitch," from the neighbourhood of the Dead Sea. It was prized as a remedy

from early Roman times. Tyriaca, Greek theriaka—the source of our word treacle-was a complex panacea of which we hear in connection with a Greek medical adviser of Nero (A.D. 54-68). It was held to be of special avail against venomous beasts (theria). Of tyriaca there are several mentions in the Leechbooks. One of these entries is of interest as giving a series of remedies, scammony, gutta ammoniaca, tragacanth, aloes, galbanum, balsam, petroleum, and tyriaca, all from the Levant or Asia Minor. This indicates some trade in drugs then with the Eastern Mediterranean.

It may well be asked, "All these invocations, devices, drugs, and charms were foreign, at least in suggestion, but had the Anglo-Saxons no magic of their own?" Yes, they had, but comparatively little of



Fig. 5. Anglo-Saxon leech offering a potion, from a manuscript book of about 1100 A.D. He is not tonsured and his dress is native.

it has survived. It is to be remembered that the English were a barbarian people, receiving a foreign and much superior culture, mostly through the Latin Church which had set its face against the pagan gods and pagan magic. How much native practice would one expect from a native African doctor trained in England? But the little native magic that does survive in the documents of the Anglo-Saxons is of great interest for it gives a glimpse of the customs and practices of their continental tribal ancestors.

Incantations followed by Herbs

This native English material consists entirely of incantations which, as the very word implies, were sung (Latin canto, I sing) over the patient, often into his wounds, or mouth, or ear, and often followed by the administration of



Fig. 6. Leech branding a patient who has just been shorn. Neither the leech nor his associates is shorn and the leech wears native dress. From a manuscript of about 1120 A.D. Branding at specified spots for specified symptoms was a continental practice introduced into England at the very end of the Anglo-Saxon period.

some simple native herbal remedy. It is difficult to give these incantations any meaning in translation, for they are in alliterative verse and neither the repetitive sounds, nor the rhythm, nor the chant, can be presented on the modern English printed page. Further, the magician sceks to make his spells as mysterious as he can, to impress his patient. Thus many of the allusions have been lost or are, at best, hard to explain. The most that we can do is to give a few typical verses with line-by-line English translation.

Ond thu wegbrade, wyrta modor,

eastan openo, innan mihtigu;

ofer dhe craetu curran, ofer dhe cwene reodan,

ofer dhe bryde bryodedon, ofer the fearras fnaerdon;

eallum thu thonne widhstode ond widhstunedest:

swa dhu widhstonde attre ond onflyge ond thaem ladhan

ond thaem ladhan the geond lond feredh.

And thou, waybroad, mother of herbs,

From eastward open, mighty within;

Over thee have chariots rumbled, over thee have queens ridden,

Over thee have brides cried out, over thee have bulls snorted;

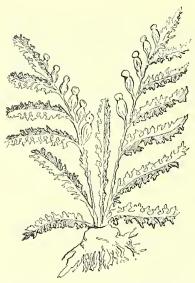
All didst thou then withstand and dost confound:

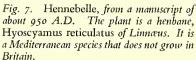
So do thou withstand venom and onflight

And that evil thing that fareth through the land.

The term *mother* is complimentary and often applied to objects of special significance, such as healing herbs. The *onflight* and *onflyers* are the invisible causes of (epidemic) disease, which is itself the "evil thing" that roams through

the land. The wegbrade is the broad plant of the ways or





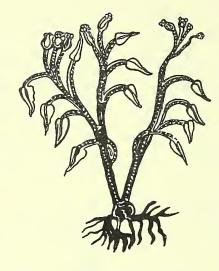


Fig. 8. Smerowyrt ("smearwort") or Herba Aristolochia, from a manuscript of about 950 A.D. The plant is the Aristolochia clematitis of Linnæus, a Mediterranean species that does not grow in

The shafts of elves early became confused with those assaults of demons and possession by them from which the early ascetics suffered so sorely. As Christian doctrine penetrated more deeply, fear of demons of Hell increased, while the native Pagan elves, once terrifying monsters, shrank into relatively minor mischief-makers. Anglo-Saxon elves were, at first, always male, but, from the eleventh century onward, a feminine form alfen was employed to represent the classical nymphæ and their like. These ladies were naturally gentler than their male counterparts. By the fourteenth century they had become assimilated to the fata-which became Englished as fay or fairy. By the sixteenth century the elves had sunk further into mere subjects of the fairies and merely did their pinching for them. Elves, however, still continued their spiteful attacks on brute creation which the more self-respecting demons would regard as poor game. In Scandinavia, as shown in the work of the Swedish bishop, Olaus Magnus (1555), the old conception of elves lingered till the sixteenth century (figs. 11 and 12).

paths, the waybroad, "plantain" as we now call species of the Linnæan genus Plantago. Plantains are common on green ways of worn or cropped grass where such events as are related in the chant may be expected. The magician enumerates each of nine herbs in comparably mysterious language and then sings of their power.

dhas VIIII ongan widh nygon attrum. wyrm com snican, toslat he nan. dha genam woden VIIII wuldortanas, sloh dha tha naeddran thaet heo on VIIII tofleah. And finally he reassures the patient in these terms:

These nine darts against nine venoms. A snake came crawling, nought did he wound. Then took woden nine magic twigs, Smote then that adder that in nine bits he flew apart.

Now these nine herbs avail against nine [really ten] spirits of

Against nine venoms, and against nine onfliers, Against the red venom, against the foul venom, Against the white venom, against the purple venom, Against the yellow venom, against the green venom, Against the livid venom, against the blue venom, Against the brown venom, against the crimson venom.

Disease and the Supernatural

Widespread among the Anglo-Saxons was the belief that symptoms of disease result from the attacks of a variety of supernatural beings. Such were the Aesir (greater gods) notably Thor, witches, elves, smiths, and other members of the "furious host." The modern German seized with sudden lumbago still complains of what he calls Hexenschuss, i.e., shot of witches. "Witchshot" is a constantly recurring complaint in the English texts. The elves of early times were very dangerous and highly terrifying beings, utterly different from the lovably winsome and wayward beings into which Shakespeare has changed them for us (figs. 11, 12, 13). Anglo-Saxon elves were always waiting round the corner to take pot-shots at unsuspecting mortals. Sometimes they attacked in mass formation, when they could be resisted only by heroic beings, such as the practitioner of magic, who could repel their darts by sending better ones against them (fig. 11). These venomous elves danced on the sward at night and left there the green circles that every mushroom gatherer knows (fig. 12). Occasionally in Anglo-Saxon art the elf is represented as a smaller though no less noxious pest (fig. 13).

A Typical Recipe

But the major part of Anglo-Saxon treatment, at least as recorded in the manuscripts, was less romantic than such items as we have selected. The leechbooks consist

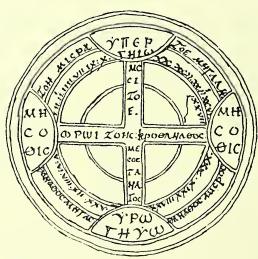


Fig. 9. Circle of Pythagoras in crude Greek script by an Anglo-Saxon hand, written at Ramsey about 1110 A.D. Above in the circles is written ZOE MICRA and ZOE MEGALE, below THANATOS MEGAS and THANATOS MICROS with the numbers of the days of the month. At the four points of the cross and along the limbs are written a few words in confused and badly spelt Greek. The scribe had no knowledge of Greek and was merely copying, and that very carelessly.

mostly of masses of recipes, the repetition of which would be intolerably tedious. We give a translation of just onechosen almost at random as being fairly typical.

"The man who suffers from neck-tumour: Let him take neck-wort, and wood-marche, and wood-chervil, and strawberry runners, and boar-throat, and cockle, and ironhard gathered without iron, and butcher's broom, and broadbishopwort and brown-wort. Let him collect all these plants, an equal amount of each, three nights before summer comes to town, and make them with Welsh ale into a drink. And then, on the eve when

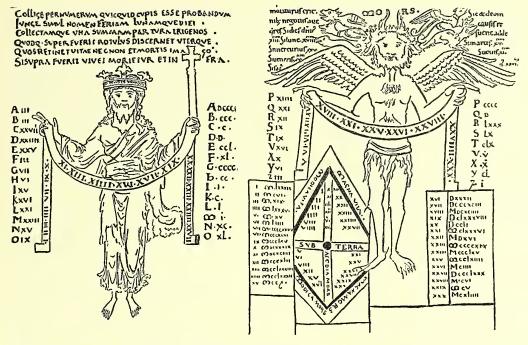


Fig. 10. An elaborate form of the circle of Pythagoras, prepared at Glastonbury about 970 A.D. To the left is the "circle of life" and to the right the "circle of death." The man's chance of life depends on the letters of his name. Each letter in it has a numerical value, and the resulting total is brought into relation with the day and date of the disease in order to calculate his chance.

summer comes to town, the man who intends to drink that drink must wake all night. And at first cock-crow let him take a drink, at first dawn a second, at sunrise a third. And let him rest thereafter.'

The plants neck-wort and boar-throat, and certain others in the list, were obviously chosen because of their names. The phrase "when summer comes to town" uses the word town (Anglo-Saxon tun, the -ton of place-names) as equivalent to farm, and the writer means the first day of summer. This day of the summer solstice was once a pagan festival and later came to be regarded as the birthday of St. John the Baptist. The custom of remaining awake the night before an important event, was a well recognised pagan practice. It passed into Christian custom especially for that particular night of celebration common to pagan and Christian. Some trace of it can perhaps be discerned in the various midnight services that survive.

A few words must be said on the actual herbs used by the Anglo-Saxons. They have sometimes been credited with exceptional powers of observation, because of the



Counter-attack against "elf-shot." From Olaus Magnus, De gentibus septentrionalibus, Rome, 1555. A horde of elves, urged by a ferocious witch, hurl their missiles at heroic mortals who, aided by magic arts, return their darts.

many plant-names and plant-figures in the manuscripts. But it must be remembered that all the descriptions of plants in the A.S. medical texts are translated; and most of the plantnames are transliterated or translated from works which had existed centuries for Latin. The figures always are vishly copied. No new or original observations are traceable in the Anglo-Saxon accounts of the plants them-The earselves. liest herbal which presents any evi-dence of an appeal to nature in England was not written till about 1120 and illustrated later. Since the plant-

names in these

Anglo-Saxon manuscripts are mostly merely copied or translated from Latin sources, they can seldom represent more than an empty sound. This point is reinforced by the ascription of English names to slavishly copied figures of Mediterranean species (figs. 7 and 8). The scribe had hardly any knowledge of the significance of the plant-names in south Italy, while the south Italian source was itself removed by many stages of copying from its original. The flora of south Italy is very different from that of England. Furthermore, the Latin names for plants were themselves mostly interpretations—or mis-interpreta-tions—of Greek names. Thus only a small proportion of Anglo-Saxon plant-names which translate Latin plantnames can be seriously regarded as representing any plant which can now be identified. A striking case of mistaking the nature of a plant is our word daffodil. This word is none other than a modification of the asphodel of the Greek and Latin poets—a very different plant.

The fact is that few of the plants used by the Anglo-Saxon leeches can be identified at all. A good example of



Fig. 12. Dance of the elves in a "fairy ring." From Olaus Magnus, De gentibus septentrionalibus, Rome, 1555. The elves are assimilated by Olaus to the fauns, lenures, satyrs, larvæ and all the host of Pan in Roman magic.



Fig. 13. Diseased elf-ridden man. From a psalter written and illustrated at Canterbury in the first half of the twelfth century. The scene illustrates Psalm 38: " Oh Lord thy arrows have pierced me . . . There is no soundness in my flesh . . . My wounds stink . . . I am bowed down greatly." Christ, armed with bow and arrows, stands above, supported by angels. There is confusion between his arrows and elf-shot. The elves tear the victim's cloak. The divine arrows show their marks as a rash on the sufferer.

light-hearted identification is provided by the attempts to interpret alfthone, a plant often mentioned in the Leechdoms. In four associated passages it is a remedy for "elf disease" (alfadl). Of this word the first element is elf. On this account the word was translated "enchanter's nightshade," equated with Circaea lutetiana of Linnæus. Unfortunately, however, there is nowhere in the Leechdoms a description or figure of alfthone. "Enchanter's nightshade" is a charmingly romantic term for an unattractive and tiresome garden weed but it can be traced in English no farther back than John Gerard (1545–1612). It appeared in his Herball in 1597, perhaps because the Germans had long called the plant Hexenkraut="witches" herb." Gerard gives it the additional name of Circea and tells that it is popularly thought to act just like Mandragora (mandrake), which does, in fact, contain a dangerous poison. This error of Gerard was not of folk origin, but was taken over by him from a Latin translation of Dioscorides, which gives mandragora=circeion. Now circeion has an assonance with the name of the famous enchantress Circe. That lady could procure love and perform many wondrous acts by her magic skill with herbs as set forth in the tenth book of Homer's Odyssey. But all this is merely a history of words, not of things, for Circe's plant, the Circeion of the Greek Dioscorides, is unidentifiable. Thus the equation alfthone=Circaea lutetiana is based merely on a modern association of elf, enchanter, and Circe.

The use of the Anglo-Saxon language for manuscript purposes survived the Norman Conquest only for a generation or two-till about 1140. During that time new medical methods were being introduced from the Continent. Prominent among these was a whole mass of lore con-cerning cauterisation. Different patterns for this operation were in vogue for different pains and aches and these patterns were rapidly adopted by the English leeches. They were not on any traceable rational or physiological basis and their historical origin is not yet clear. They became, however, very popular-at least with those who administered them-and the practice spread rapidly. We have already scen one representation of them in figure 6. A good idea of the simple patterns adopted is conveyed by a coloured figure of the latest Anglo-Saxon period (frontispiece).

The reader may care to close this account with an impression of the actual appearance of an Anglo-Saxon medical manuscript. We give a typical and very simple

page from a manuscript of about the year 1000 (fig. 14). To it we add a line-by-line transcription into modern lettering and a line-by-line translation into modern English.

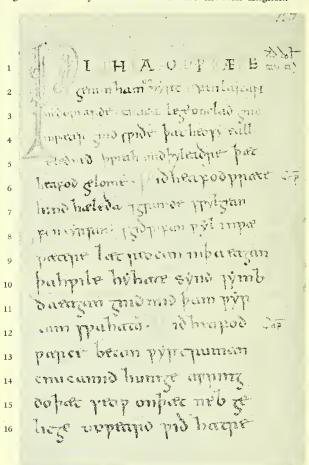


Fig. 14. Page of an Anglo-Saxon medical manuscript that was written about the year 1000 A.D. by a lay leech, and certainly not in a monastery. A line-for-line transcription and a line-for-line translation follow.

- 1 WIDH HEAFODWRAECE
- 2 genim hamorwyrt 7 efenlastan
- 3 nydhowearde, cnuca lege on cladh gnid
- 4 in waeter gnid swidhethaet heo sy eall
- geledhred thweah mid thy leadhre thaet
- 6 heafod gelome. Widh heaf-
- odwraece 7 hindhaeledha grundeswylgean
- 8 7 faencyrsan. 7 gidhrifan wyl in wae
- 9 waetere laet reocan in tha eagan 10 tha hwile hy hate synd 7
- ymb 11 dha eagan gnid mid tham
- wyr 12 tum swa halu[m]. Widh heafod
- 13 waerce betan wyrtruman
- 14 cnuca mid hunige awring
- 15 do thaet seaw on thaet neb
- 16 licge upweard widh hatre

- 1 FOR HEADACHE
- Take hammerwort & everlasting,
- 3 the lower part. Pound. Place in a cloth. Rub.
- in water. Rub hard so
- that it be all 5 lathered. Wash with the
- lather the 6 head frequently. For head-
- ache
- 7 hindheal & groundsel,
- 8 & fencress & cockle. Boil in wa
- 9 water. Let stream into the
- 10 while it is hot; & round 11 the eyes rub with the pla-
- 12 nts thus hot. For head-
- 13 ache. Roots of beet.
- 14 Pound with honey. Wring out.
- 15 Apply the juice over the nose. Let
- 16 him lie upward towards the hot sun & hang the head downward until it reach the

The last part of the sentence in line 16 of the manuscript (fig. 14), of which we have not given the Anglo-Saxon original as it is overpage in the manuscript, involves a belief that the brain is the source of mucus in the nose! Astonishing though it may seem, this view was firmly held from early Greek times onward and was borrowed by the Anglo-Saxons from Latin versions of Greek works.

It is necessary, in reading Anglo-Saxon manuscripts such as the one illustrated, to realise that not only was Anglo-Saxon lettering different from ours, but also that the language had several letters that we have lost. All that need be mentioned here, for the understanding of the process of transcription, are the special letter thorn here transcribed as th, the hard th sound, represented in Anglo-Saxon by a barred d and here transcribed as dh, and the diphthong α pronounced as α in the word flat and here transcribed as α . With these few guides the reader will easily trace some resemblances between the early English language and his own. He must remember that the Anglo-Saxon language was highly inflected whereas modern English has lost almost all its inflections except those used in conjugating the so-called "strong" verbs.

WISBECH CHYRURGION

of the late Seventeenth Century

By PHILIP GEORGE

Fellow of Christ's College, Cambridge

N 1911, Dr. W. M. Palmer, a physician and antiquarian, who practised at Linton, near Cambridge, wrote a paper entitled "Cambridgeshire Doctors in Olden Time," based on the wills and inventories of goods relating to apothecaries, surgeons and physicians that he had discovered in the University Archives at Cambridge and in the Episcopal Archives at Ely1. From those documents he brought to light some fascinating information about the practice of medicine in the sixteenth and seventeenth centuries and the kind of life the doctors and apothecaries led. For our purposes the list of drugs that were in the possession of a Wisbech surgeon—Henry Hayes, who died in 1702—is the most important. It amplifies our picture of the actual practice of pharmacy at the time, in much the same way that a study of the 1721 London Pharmacopæia used by Jeremy Cliff was able to do2.

Wisbech, at the end of the seventeenth and beginning of the eighteenth centuries, was relatively a much more important town than it is today. The great manufacturing centres of the Midlands and the North did not come into being until the industrial revolution some hundred years later. But Wisbech, on the River Nene, was a flourishing East Coast port: the hinterland, the rich agricultural country of Lincolnshire and Cambridgeshire, had only recently been much extended and opened up to water transport by



the reclamation and draining of the Fens. Although King's Lynn and Boston carried a greater trade, Wisbech exported much grain to London, and imported a wide variety of goods such as coal, charcoal, deals and lead for building, malt, tobacco and wine. The fine old houses along North Brink are a reminder of its past prosperity. In that thriving community Henry Hayes lived and had his practice.

Many surgeons kept and compounded drugs. So did their more illustrious colleagues, the physicians; and of course, the apothecaries themselves were in the habit of giving medical advice in their shops. So the fact that Henry Hayes was a surgeon rather than an apothecary, like Jeremy Cliffe, does not really lessen the importance of his pharmaceutical activities. The list of drugs that he left, rearranged in alphabetical order, reads as follows:-

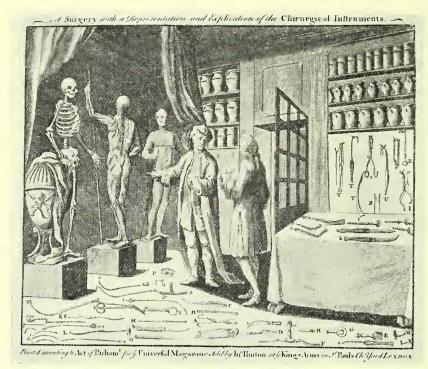
SIMPLES

Aloes Barb'.—1 lb. 13 oz., Aloes Succ'.—11 oz., Antimony—12 oz. Bole Armenian—1 lb. 15 oz., Balsam—1 oz.

Cardamom—4 oz., Coriander—12 oz., Camphor—1 oz., Cerus—1 lb. 10 oz., Cumin—10 oz., Cantherides—5 oz., Castor Angliae-1 oz., Cubebs-4 oz., Colocynth-8 oz., Crabs' eyes 2 oz., Civet—a scrap.

Frankinsence— 2 lb., Fenugrec—1 lb. Gum Elemi—12 oz., Geryon—8 oz.

Hartshorn-1 lb. 15 oz. and 1 lb. of the residue after distillation. Jalap-2 oz., Jalap resin-1 oz.



An engraving of a "Chirurgery" taken from the *Universal Magazine* for September 1748, showing In the background an extensive array of drug jars, drawers for herbs, etc., which suggests that it was also common practice at that time for a surgeon to be able to provide his own drugs.

Lapis Hibernicus—1 lb., Lapis Calaminaris—12 oz., Liquorish-

8 oz., Litharge—1 lb. 4 oz., Lignum Vitae—3 lb. Manna—1 lb., Myrrh—3 oz., Mercurius Dulc.—1 oz., Mercurius Subl.—1 oz., Mirtle—1 lb., Musk—half a dozen.

Olibanum—8 oz., Opium—½ oz., Olive Oil—12 oz. Precip. Rubrum—2 oz.

Quassiae-14 oz., Quicksilver- 1oz.

Red Lead-2 lb. 8 oz.

Sulphur—1 lb. 12 oz., Senna—12 oz., Saltpeter—10 oz., Scamony -1 oz., Spermaceti—1 oz.

Turpentine—3 lb. 6 oz. Vitriol Roman—5 oz., Vitriol white—6 oz.

Winteri Cortex-7 oz.

PREPARED AND COMPOUNDED DRUGS

Electuaries, Emeticks, Opiates, etc.—Elixir Exproprietatis—2 oz., Lenitive Elec.—4 oz., Treacle water—1 lb., Prepared Steel—8 oz., Crocus Metallorum—1 oz., Cream of Tartar—8 oz., Diacodium simplex—6 lb., Diacodium nigrum—2½ lb.

Oils, Cinnamon-1 dram, Carui-4 oz., Roses-1½ lb., Spike-1 oz., Turpentine—1 lb. 14 oz. Syrups, Buckthorne—1½ lb., Cloves—1 lb. 10 oz., Marshmallows

1 lb., Roses—8 oz., Violets—1 lb. 6 oz.

Ointments, Liniment Arceus—10 oz., Spermaceti Almond—1 oz., Ung. Egiptiacum—\(\frac{1}{2}\) lb., Ung. Dialthae—1 lb., Ung. Album Camphoratum—3\(\frac{1}{2}\) lb., Ung. Populeum—2 lb.

Plasters, Empl. Oxycroceum—3 lb., Empl. Diasulphuris—6 lb.,

Empl. Mellilot—2 lb., Stomach plaster—1 lb.

Their total value, together with a "little brass mortar, twenty-eight pound and a half of lead, seaven pound of iron," came to £3 6s. 1½d. That sum was not so small as it seems, but it is rather hard to get a good basis for comparison. Modern prices are no help, because of increased production and lower costs. Some idea of its worth may be gathered from the sum of £80 the Royal Society, some years before, had agreed to pay the brilliant scientist Robert Hooke, in his capacity as Curator of Experiments. The £3 6s. $1\frac{1}{2}$ d, amounts to about one twenty-fourth part of that yearly salary, which would be equivalent to between £50 and £100 today.

As Dr. Palmer noted, the variety and scope of the drugs is astonishing, considering that Henry Hayes was not an apothecary. The simples include colocynth and jalap to induce pain, and coriander and cardamoms to mitigate it. There are bitters: quassia, lignum vitae and winter's bark; and aromatics: olibanum, frankincense, elemi and balm of Gilead. Several essential oils are there; costly drugs like musk and civet; and, as would be expected, ingredients for ointments and plasters—Lapis Hibernicus (sulphurous Irish slate for bruises), litharge, ceruse and red lead.

Among the compounded drugs many are typical of his calling: Ung. populeum, a cooling ointment for burns and scalds; ung. camph. alb., for inflammatory tumours; ung. dialthæ, emollient and suppurative; and ung. Ægyptiacum for "eating off rotten flesh."3 plasters, diasulphuris, mellilot and oxycrocum, were for treating ulcers and green wounds, for use as a carminative, and for strengthening those parts weakened by disease and accident.

Pustules of the smallpox were anointed with spermaceti almond. But other drugs are more reminiscent of the physician—the emetick, crocus metallorum; the purge, lenitive electuary; the opiates, diacodium simplex and nigrum; the sweet cordial, syrup of cloves; the treacle water and elixir exproprietatis to fortify and strengthen the fibres. In preparing the patient for an operation, easing his pain, and helping his recovery, all would have found immediate use.

A scrutiny of the prescriptions for these drugs shows that, with the exception of the treacle water, Henry Hayes would have needed about seventy extra simples to make them. For that particular preparation another twelve were wanted, not counting the two compounded drugs, Venice treacle and mithridatum, which required in addition about sixty more. Venice treacle was a well-known article of commerce, and it may be assumed that, in view of the complexity of their composition, Henry Hayes would have obtained any mithridatum and treacle water he needed already compounded from an apothecary, chymist or druggist. Furthermore, since he could not have made the other twenty-seven compounded drugs without at least twice as many simples as he actually had, the conclusion seems inescapable that he bought the majority of those wholesale too.

Bought from a Chymist

Little is known about the extent of that wholesale trade. It is assumed sometimes that the chymist or druggist dealt only in simples, leaving the apothecary to compound the drugs, according to the official pharmacopæia or other recognised extemporary sources. However, that was not always the case. Quincy, in his "Compleat English Dispensatory" has many remarks to make about the "wholesale apothecaries and chymists who deal in Medicines for their Often his remarks are of a derogatory nature, complaining of adulteration and intense competition. He comments on Emplastrum Oxycrocum to this effect: "This Emplaster is much in use, but seldom made with its due quantity of Saffron; the Price being brought down so low by the Medicine-Merchants, or such as are called wholesale Apothecaries, that a Person must be a loser who makes it genuine." There is additional evidence that Henry Hayes purchased all the compounded drugs, for a closer scrutiny of the simples required, compared with his list of simples, shows that only sixteen of his fifty would have been wanted. That can only mean that he used the majority of themthirty-four at least-in making up for himself other drugs that do not appear in the list.

It is a matter for speculation what they might have been. In spite of the richness of the official pharmacopæia, there are not a large number of possibilities, since many of the simples were evidently regarded as specific, and occur in only a few prescriptions. The following twelve have been chosen to include as many as possible:

Emp. de Minio (red lead), a gout plaster

Emp. Epispasticum (cantharides), a blistering ointment Laudanum Liquidum Sydenhami (opium), an opiate

Spirit and Tinct. Castorei, for use in nervous and hysteric

complaints-epilepsies, palsies and headaches. Tinct. Cantharides, a stimulating cordial

Tinct. of Crabs' Eyes, for curing old ulcers

Tinct. Myrrh, a vulnerary for preventing gangrene and mortification

Ung. Coeruleum (quicksilver), venereal disease

Ung. Rubrum Desiccativum (bole, calamine, litharge, ceruss, camphor) a drying ointment

Vitriolatum Camphoratum for stopping fluxes of blood, and treating ulcers

Ung. Egiptiacum plus red precipitate, used as an escharotic and as a suppurating ointment.

Delirium, Diaphoresis, Distemper

No less than eight are ointments, plasters, and preparations of direct use in surgery. Three more, the opiate and the preparations of castor, which "keep off a Delirium, forward a Diaphoresis and bring the Distemper to a Crisis," may have served to relieve the pain and help the patient to survive the rigours of the more crude operations.

Looking back over the list of drugs, one gathers the impression that, in his pharmaceutical practice, Henry Hayes had high professional standards and kept closely to the official pharmacopæia. There are no signs of the picturesque excesses of Nicholas Culpeper, and no evidence that he followed the more "imaginative" dispensatories of surgeons like Thomas Brugis who, in his "Marrow of Physicke' (1640) offers a boiled swallow's nest as a poultice for the throat, or the following remarkable powder for the falling sickness: "Take a man's skull that hath been dead but a year, bury it in the Ashes behind the fire and let it burn until it be very white, and easie to be broken with your finger; then take off all the uppermost part of the Head to the top of the Crowne, and beat it as small as is possible; then grate a Nutmeg and put to it and the blood of a Dog, dried and powdered; mingle them all together and give the sick to drinke, first, and last, both when he is sick and also when he is well, the quantity of half a Dram at a time in white wine." Remedies of this kind, relying partly upon sympathetic magic, bring to mind the Papyrus Ebers of Egyptian antiquity; yet they remained in vogue in Europe until the eighteenth century, and the folk-medicine of the nineteenth century still bore their traces.

There can be no doubt, however, that Henry Hayes made considerable use of chymical simples and drugs. The antimony compounds, the mercury, especially the mercurius dulc., the mercurius subl., and the red precipitate, the saltpeter and the vitriol, all bear witness. In this respect he was probably more progressive than many of his fellow physicians and apothecaries. If the practice of Jeremy Cliffe was characteristic, then this is certainly true; for though Jeremy Cliffe copiously annotated so many of the traditional galenical prescriptions in his pharmacopæia, he left the sections dealing with Olea Chymica and Medicamenta Chymica almost untouched.2 But it was not the use of mineral drugs as such that constituted the departure from tradition. With the exception of the antimonial and mercurial compounds. Henry Hayes' mineral drugs, like the galenicals, were known in Classical Antiquity. Even the Papyrus Ebers, which dates from about 1500 B.C., and contains recipes probably two thousand years older, employs about twenty. Their use was widespread during the Middle Ages and Renaissance, as manuscript sources and the early printed books clearly show. "Circa Instans," a compilation of medicinal simples made by Platearius, a physician of Salerno in the twelfth century, lists twenty-eight mineral simples in a total of 273: Benevenutus Grassus, who practised there a little earlier, wrote one of the first monographs on diseases of the eye, "De Oculis," in which he records eleven mineral drugs out of a total of 105. Hieronymus Brunschwig, in his famous "Book of Cirurgia," printed in Strasbourg in 1497, some thirty years before Paracelsus' first publication, quotes at least thirty-five.

Break with Tradition

The real departure from tradition lay in the use of any drugs prepared by chymical operations, especially those involving fire-distillation and sublimation, and in the use of mineral drugs internally4. Typical of the latter class were antimonial and mercurial compounds. The long time that passed before these valuable additions to the armoury against pain and disease were accepted presents an intriguing problem to the historian of medicine. There were not lacking zealous protagonists, both abroad and in this country, yet some two hundred years elapsed before this reform of the pharmacopæia, initiated by Paracelsus, was effected. Although finally approved by the great medical schools, the establishment of the new medical doctrine depended at least as much on the response of those who practised medicine. The fact that Henry Hayes was a surgeon would partly account for the attitude he appears to have adopted, for the surgeon, in contrast to the physician, had more occasion to employ mineral drugs—in the plasters, the ointments and the powders for treating wounds. In addition, it appears that he bought many of his preparations wholesale from the chymists and druggists—traders who, uninfluenced by the long galenical tradition, would turn more naturally to the operative chymistry of Paracelsus. The part played by the surgeons in this way may well have been a significant factor in the establishment of pharmacy on its broader basis.

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The illustration in the titlepiece is of the town of Wisbech and the surrounding Fen country, as depicted in a late seventeenth-century map printed during Henry Hayes' lifetime. The full title reads "A Mapp of the Great Levell of the Fenns called Bedford Levell, with the Rivers and Outfalls thereof to the Sea."

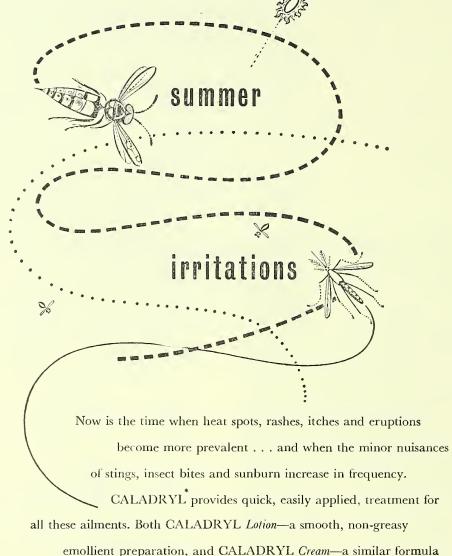
The author wishes to thank his colleague Mr, G, H, F. Fraser for providing the photograph for the titlepiece. The illustration from the Universal Magazine is reproduced by kind permission of the Syndics of the University Library, Cambridge,

FIFTY YEARS AGO

RADIOBES

From the C. & D., June 25, 1905

MR. J. B. Burke, of the Cavendish Laboratory, Cambridge, has been working for the last ten years on the subject of phosphorescence. . . Observing that radium and cyanogen have several properties in common—they are highly excitable, and contain a vast store of energy, different, howin magnitude—experiments were tried with radium. Sterilised bouillon and radium were placed in a test tube, and in a day or two cultures were obtained. Sub-cultures were next made, but they did not grow as sub-cultures should. The cultures are, moreover, soluble in water, while bacteria are not, and, as the cultures sub-divide on reaching a certain size, they are not crystals. "Possibly," Mr. Burke says, "they are a primitive form of life," and tentatively he names the cultures "radiobes." The theory amounts to a kind of spontaneous generation. It is proposed to carefully prepare some tubes of bouillon. but instead of using radium, as in the experiment, to employ earth. The tubes will be deposited with some public body, with instructions that they be tested at intervals of hun-dreds or thousands of years to see if the radio-activity of the earth has given birth to any radiobes. It is as well to refrain from criticism until the whole complete account of Mr. Burke's research is available; but he claims that the radiobes exactly fulfil Herbert Spencer's definition of life.



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TELEGRAMS: "CHEMICUS ESTRAND, LONDON"

Feast of Many Courses

THE 1955 Annual Special Issue of THE CHEMIST AND DRUGGIST is presented as something in the nature of a banquet for the epicure in pharmaceutical reading matter. Our subscribers are busy people and a diet of this kind would not be appropriate for all of them every week. Yet chef and guests alike welcome an occasional more lavish, more substantial repast.

That it is a "sit-down" meal we agree. Into some of the articles go considerable erudition and prolonged research, demanding and deserving more than a quick and casual tasting. All are presented as entertainingly and appetisingly as we know how, and if the whole proves too much to absorb at a single sitting, the fare—unlike that of an actual banquet—will keep perfectly for as long as necessary and indeed may provide at a second savouring delights unnoticed at the first.

The dishes fall principally into four classes. As in previous Annual Special Issues the historical element is strong. Dr. Charles Singer contributes an article on a subject on which he is an acknowledged—possible the acknowledged—authority: the practice of medicine in Anglo-Saxon times; he shows it to have been partly influenced by the ancient civilisations, with a large addition, as one would expect, of superstition. Coming a little nearer to modern times a Muslim writer, Mr. Rafiq M. Khan, puts forward the claim that Gebir is entitled to be called the first chemist, backing up his claim with historical evidence. A short note on Alexander of Tralles is topical in view of the 1,350th anniversary this year of his death.

The question whether friars' balsam was originally a proprietary, or derived its name from religious associations, is most knowledgeably discussed by Mr. C. G. Drummond, and the conclusions he arrives at are such as to carry conviction. Dr. Philip George follows up his earlier study of Jeremy Cliff with an examination of the drugs used by an East Anglian "chyrurgion" of the early years of the late seventeenth century: they show that he used surprisingly many and must have bought numbers of them from chemists and druggists.

Chemists' shops in London over a century ago, and how they stood up to inspection, are the subject of an article by Mr. Laurence Dopson, and Mr. P. J. White traces the 140-year history of a West London pharmacy.

Collectors of drug jars will welcome another illustrated article from the authoritative pen of Miss Agnes Lothian, who on this occasion traces the introduction, subtle change and eventual demise of the winged angel as a decorative motif on English delft drug jars.

Side by side with history, what more suitable than

geography? Pharmaceutically that takes us in 1955 first to Aberdeen for the eighty-seventh meeting of the British Pharmaceutical Conference, giving an introduction and preview of the "granite city" and its pharmacies. As the Aberdeen meeting is being followed shortly by the sixteenth London assembly of the International Pharmaceutical Federation, it has been thought appropriate to describe the organisational setup in pharmacy in a number of countries from which visitors will be coming to Britain in September. So far as we know, the information given has never previously been brought together and presented to British readers.

From pharmaceutical geography we pass to pharmaceutical aspects of medicine. A review, by Mr. Sidney J. Hopkins (chief pharmacist at Addenbrooke's Hospital, Cambridge), of the drugs used as anthelmintics, has been compiled with the thoroughness, and presented with the lucidity, he has shown in previous articles in a series he was specially commissioned by this paper to write. Miss Margaret Falcon, another hospital chief pharmacist, puts on record the changes, amounting virtually to a revolution, that have taken place in the medication of tuberculous patients. Her exceptional point of vantage at a leading T.B. hospital has enabled her to provide material that future medical and pharmaceutical historians will seize upon with avidity. For present readers Miss Falcon's account may evoke a justifiable pride in the progress made in this field. A scourge that once brought distress and despair to patients' relations, perhaps even more than to themselves, has been largely robbed of its terrors. Writing over a century ago, Charlotte Brontë, herself later a victim to the disease, describes her sister Emily in its throes, using words that must be among the most moving ever written:-

A more hollow, wasted, pallid aspect I have not beheld. The deep tight cough continues; the breathing, after the least exertion, is a rapid pant, and these symptons are accompanied by pains in the chest and side. Her pulse, the only time she allowed it to be felt, was found to beat 115 per minute. . . . Our position is, and has been for some weeks, exquisitely painful. God only knows how all this is to terminate. More than once I have been forced boldly to regard the terrible event of her loss as possible, and even probable.

It is unlikely that such words would need to be written of many patients today.

From pharmacy of the present and recent past we turn to pharmacy of the present and widening future, with an account of the handling of radioactive materials in a London cancer research institute.

The final course in our repast is in the domain of materia medica, where again The Chemist and Druggist can fairly take pride in its record. An illustrated article on isinglass goes both widely and closely into matters related to that historically and scientifically most interesting commodity, about which little information has previously been published. An article on a variety of rauwolfia keeps us and our readers au fait with an important variety of that most recently developed of botanical drugs.

Brief mention is made of the unique Pinto collection of wooden objects of antiquarian interest, and a broadsheet of verses about "the upstart chymist" may amuse without needing to be taken too seriously.

We are glad, too, to be able, through the ending of the rail strike, to bring to readers the whole of the material under one wrapper, an event that might have been difficult if the emergency postal regulations had been still in operation.

From 1518 until well into the nineteenth century the premises of apothecaries, druggists and chemists were subject to inspection by censors appointed by the Royal College of Physicians. Censors' reports over a period of 132 years reveal the

STATE OF LONDON CHEMISTS' SHOPS IN THE 18th and early 19th CENTURIES

By Laurence Dopson

THEN Henry VIII in 1518 granted letters patent to a body of regular physicians which became the Royal College of Physicians of London, he provided that "for the common wealth and surety" of his loving subjects the College should elect four persons the best, learned, wisest and most discreet" as censors.

Their duty was "to enter into the house or houses of all and every Apothecary, now or any time hereafter, using the mystery or craft of Apothecary within the said city [of London], onely to search, view, and see such Apothecary wares, drugs and stuffs, as the Apothecaries, or any of them have, or at any time hereafter shall have in their house or houses: And all such wares, drugs and stuffs, as the said four persons shall then find defective, corrupted and not meet nor convenient to be ministered in any Medicines for the health of man's body, the same four persons calling to them the Wardens of the said Mystery of Apothecaries within the said City for that time being, or one of them shall cause to be burnt or otherwise destroy the same, as they shall think meet by their discretion." If any apothecary refused to submit to such search he was liable to a penalty of £5, one half of which fine went to the King.

An Act passed in the reign of Henry's daughter, Queen Mary, allowed the Wardens of the Grocers company or one of them to go with the Physicians, an indication of the connections of sellers of drugs in those days. The Act increased to £10 the penalty for resistance and directed "all Justices Maiors Shrieffes Baillifes Constables and other Ministers and Officers within the Cittie and precinct" to assist in the searches.2

The Charter granted to the College by King James I laid down that the four censors or any three of them "shall and may have full and absolute power and lawfull authority at all tyme and tymes when and as often as to them as aforesaid shall seeme meete and convenient to enter into the House Shoppe Cellar Vault Workehouse or Warehouse or other roomes of the house of any Apothe-

32 Hen. 8 c. 40. Quoted in Charles Goodall, The Royal College of Physicians of London (London, 1684).
 1 Mary c. 9, Ibid.
 1bid.

4. It is interesting to compare the privileges of inspection of drugs given to the London College with those of the Royal College of Physicians of Edinburgh. The same King James who granted a Charter to the London physicians issued an order in 1617 to the Scottish Parliament for the establishment of a College of Physicians in Edinburgh, in which he suggested that warrant should be given to the College to appoint yearly three of its number to visit the apothecaries' shops in the burgh, to examine the state of the drugs exposed for sale, and to destroy such as might be found corrupt or insufficient. In 1681 Charles II granted a Charter of Erection for the Royal College of Physicians of Edinburgh, which granted the power to the President "as often as shall be necessary to search, examine and inspect the drugs and nedicines, simple and compound, now or hereafter to be sold within the jurisdiction, suburbs and liberties of the said City, if these are fresh, good and real and such as may be trustfully used and applied in the treatment of the diseases and complaints of liege subjects: It being duly provided, as by these presents it is specially provided, that when such an inspection or search is to be made one of the Magistrates within the jurisdiction of the said City, with one Apothecary and one Surgeon Apothecary to be appointed visitors for the time who shall be required to be present in order to see, for the public advantage, that the same are well and according to rule compounded and prepared, and when drugs are found insufficient or spoiled, with the power to throw them into the public streets or to destroy them."

The Edinburgh College allowed this duty to lapse. (Historical Sketch and Laws of the Royal College of Physicians of Edinburgh, Edinburgh,

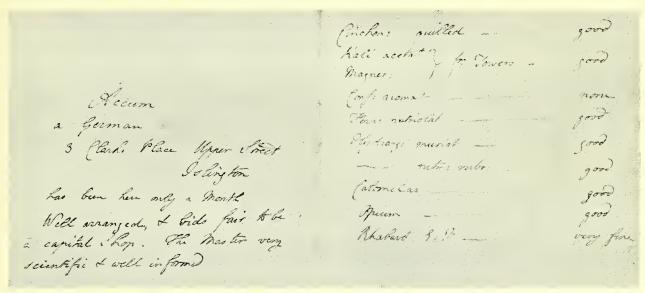
carie Druggist Distiller and Sellers of Waters Oyles or other compositions. . . ." The point of interest in that extension is the introduction of the term "druggist" as opposed to apothecary, who was a kind of medical practitioner. The censors by James's Charter were to "view search trye examyne and see the said medycines wares druggs waters oyles medycines and stuffs of such Apothecaries Druggists Distillers preparers or sellers of waters oyles or medicines or other person or persons aforesaid." A further charter from Charles II provided that the whole of any fines should go to the College.4

These powers of inspection naturally aroused some resentment, and the censors were not always so fortunate as their modern successors in function, the inspectors of the Pharmaccutical Society, in receiving a friendly reception. Among the unpublished MSS in the Royal College of Physicians library is one headed "Mr. Hammond Apoth: his rude Treatment of the Censors when they Visited him." It is a case stated for counsel's opinion upon an incident in June 1719.

"The four Censors went to examin Mr. Hammonds Shop having before visited Severell Apothecaries in ye Neighbourhood. He at ye very first appeared Surly and soon gave very unmannerly Language. He wanted [lacked]

We Fammone Apoth his rude. Treatment of the Consers we they Sund 1710 The four Consers went to examin Me Hammonds Thop having before cifilite tweraft (throthecaries in y thing beauthous the strained first appeared furly and for some several Midicines which he was oblique to keep particularly Diafordium a benice treacte to fur that Mithridate, think he had worth for the for to the Hosain y for sore came to affront him, and when the found fault with it has good or how it heart for they know when it was good or how it heart being very tao in its kind they ordered it to be thrown on they are in its kind they ordered it to be thrown on Tad in its kind they exerce it to be thrown ca into the Accet Afterna very imperious Manner after D. Chamberlain on off lin-couplating Name way Said he would com Land Salisfaction of fastier of him and the honore a Sword Then affed the Beadle. Hame, threating him Stockem throwow

The four censors report on the "Surly and unmannerly" reception they had from Mr. Hammond, Apoth.



Mr. Accum, a German, "very scientific and well informed," receives high praise. He was the "operative chemist" about whom a biographical article was published in the C. & D., June 26, 1937, p. 767.

several Medicines which he was obliged to keep, particularly Diascordium & Venice Treacle, and said that Mithridate which he had would Serve for both. He said ye Censors came to affront him; and when they found fault with ye Barly Cinnamon Water asked if they knew when it was good, or how it should be made. This Water being very bad of its kind, they ordered it to be thrown into the Street: He in a very imperious Manner ask'd Dr. Chamberlain one of ye Censors, what his Name was: said he would demand Satisfaction & Justice of him and that he wore a Sword. Then ask'd the Beadle's name, threatening him & bid him throw out the Water at his Peril. His Behaviour to all ye Censors was very insolent considering they were executing their Office which by Oath they were obliged to do in examining the Goodness of Medicines. And after they had left his Shop and were making their Visits in Cheapside he came to ye Feathers Tavern with his Sword on & sent a Messenger to Dr. Chamberlain that there was one who desired to speak with him."

Prosecution not Recommended

The truth is rarely a moral story and this is no exception. "I don't find by this Case Hammond refused or deny'd ye: Censors to enter his House & therefore I conceive that Penalty of five L: cant be recovered against him," wrote Sir Robert Raymonds. Learned counsel's opinion continues: "The Behaviour of Hammond towards Dr. Chamberlain was very indecent and insolent: but I should by no means advise a Prosecution against him for it criminally as for an Assault." The College thus had its officers insulted by the retailer in the execution of their duty (which was undertaken without payment), were unable to get any recompense, and had to bear the extra expense of a lawyer telling them they had no case.

A hundred years later, in 1817, the then censors reported of a chemist's shop at 11 Whitechapel: "The Son a most impertinent fellow." They underlined these words in their report and added: "Recommended most particularly to the notice of future Censors who may perhaps not meet with the same insolence which the present Censors have experienced from both Master and Man." On another occasion in the early 19th century the censors noted that a shop was "very good but there was a want of Courtesy on the part of the Master."

The first visitation recorded was on January 25, 1542, in Gorcer's Street, said to have been in Bucklersbury, where bad drugs were burned. From 1724 to 1856 the reports of the censors were recorded in separate books, some of them

thin exercise books, others more substantial affairs, some written in a fair hand, others in a scrawl. The series of thirty-two books, now in the Royal College of Physicians' library, forms an illuminating source of pharmaceutical history. It reveals, for the period covered, the names and addresses of chemists and apothecaries in London and the condition of their establishments—for instance in 1724 there were ten chemists' shops in the Strand, whose standard ranged from "very good" through "good" and "tolerable" to "indifferent" and that in May 1798 there were three chemists' shops in the Ratcliff Highway, two "very excellent," the other "a very indifferent shop." It also shows the type of drugs stocked. On the more intimate side one finds in the books an old piece of blotting paper (and a piece of printed paper which has been torn from a book and used as a substitute for blotting paper) and one sees an early use of blue ink. Because criticism tends to be more interesting than merit, the examples here quoted may tend to give a slightly out-of-focus picture of what is revealed by the censors' reports, but it is hoped that it gives a sufficient indication of the contents of the records and of the way the censors worked and of what they found.

One of the shops inspected at the first visitation in 1724 was that of Mr. Richard Humphrey in Essex Street-the street in which the offices of The Chemist and Druggist are now situated, "Small cinamon water but indifferent: no Castor: sal succini not perfect: reprimanded," runs the entry. "Mr. James Goodwin, Hay Market, a wholesale shop" also came under critical notice. "Venice Treacle, Diascordia, Russia Castor: all bad, & every thing almost very indifferent & reprimanded." The censors on this occasion included Dr. Arbuthnot. They returned to Mr. Goodwin a month later, on June 10, 1724, when they "burnt publickly before his door" several medicines "and some sent to ye College upon appeal." An entry on June 22 shows that Mr. Goodwin had "a box of medicine burnt before his door." Lest it might be thought that these doctors were unduly severe on the non-medical man, it should be added that their inspections of the drugs kept by doctors produced the following typical comments: "Mr. Wm. Hammond Surgeon-very well. Mr. Robert Price Surgeon—pretty well. Mr. Lowdell Surgeon Mr. Woodman Surgeon—all indifferent." Nor did they hesitate to give praise where it was due. Mr. Allen, Tavistock Street, who was visited on September 20, 1727, was "very well." "Extraordinary good Shop" was the report on Mr. Biskow of King Street, Westminster, on November 19, 1729.

Not the least interesting aspect of these books is the

insight which they give into the ways of chemists of past centuries. Thus in November 1729 Mr. Borrough of Tuttle Street was "altering his Shop." In 1725 Mr. James Johnson "Drugist Strand" "makes no medicines." On May 29, 1790, the establishment of Mr. Bramley, Tottenham Court Road, was described as "a retail Drug Shop and never makes up Physicians prescriptions." A Clerkenwell shop in 1798 only kept Aq. menth. in the summer, but this shop was "in a very unsettled state & very deficient." A shop in 1818 was noted as "a good shop but reprehensible on acct. of the Deficiency of Mercury in the Ointment & specially as he supplies many Shops in ye neighbourhood."

Absentees

What seems extraordinary is the number of times the censors found the owner of a chemist's shop out or the shop shut, remembering that they did not generally visit at week-ends but at times when shops could reasonably be expected to be open. Thus on Monday, January 10, 1731, they went to Mr. Jno. Hoyles in Warwick Lane (not far from the College itself, which was then situated in Warwick Lane) and they found him "not at Home, the Door Hoyles and pronounced his shop "pretty well." In 1748, at the shop of Maule in Piccadilly, there was "nobody at home to shew medicines." At another place in 1790 they found "a new Beginner & the Master not at Home." An entry in 1798 for a place in Thomas St., John Street, reads:

"Nobody at home to shew the Medicines. None of the Bottles labelled, & the Articles not in the drawers according

to their Labels.'

In that year the Censors went to Islington. They came to premises in Upper Street where they observed the "shop in confusion, nobody knew the medicines present." In 1806 the censors visited Mr. Davics of the Minories. Mr. Davies was out and there was no one to show them the medicines. "In window-notice that Physicians Prescriptions are made." But the Censors found Mr. Davies' rhabarbum "worm eaten."

The censors did not hesitate to commend when a shop improved between visitations, "Shop very much improved," is one entry. Their judgments were succinct. "Nothing good in this shop" was how Mr. Loyes of Snow Hill was dismissed in January 1795. "Sumthings very well other but Indifferent" is the description of Mr. Warner's in Cheapside in 1748. Early they give details of the drugs stocked. "Mr. Albone Chymist Basinghall Street Postern" had in 1749:

"Aq: Cinn. simpl. very bad. Confect. Cardiac. powders very gritty. No aq. nucis moschat. No Tinct. Sennce, Tinct. Valer., volat. the volatil hardly to be discerned. Pulv. Bezoard.—none. Confect. mithrid. the powders not fine."

In the late 18th century the Censors note the cleanliness or otherwise of a shop. Mr. Bishop's, of George Street, was "a very clean good shop." That of Mr. Armstrong of the same street earns praise as "a clean shop" although of the 10 drugs listed only three are "good." "Len: Elect: -the seeds not well powdered. Gum. Ammoni. very bad. Bark indif. Myrrh tolerable." So runs the entry.

The labelling of the drugs in a shop and whether the old or the new nomenclature was used later attracted the attention of Censors, while at the beginning of the 19th century they added scales and measures to the objects of their inspection. "Scales not clean" it is noted of Mr. Wheeler of Ludgate Street in 1801, and of Mr. Box, another chemist in that street: "Scales not accurate nor Measures." Many of the scales were found to be inaccurate; some of them are described as being of a sensible type. Also in the 19th century the censors took to recording the pharmacopæia kept in chemists' shops.

The inspections of shops must have taken a considerable amount of the censors' time. They were honorary officers and took a corporate oath to carry out their duties. The number of shops visited and the distance covered at each

visitation can be seen for the whole 132-year period. Thanks to the entries of a clerk in the middle of the 18th century we have some insight into the method of working of the censors, for in the years about 1750 it is minuted that the censors "met at the College at ten" (or eleven) in the morning and that they invariably "dined at the White-hart in Holborn at four." The number of shops visited in a day varied from forty-five (at the second visitation in 1751) to twenty-three and ten. In 1798 there appears the note: "Resolved: That for the future the Junior Censor shall write the account of Articles inspected in the several Shops."

The first report after that was dated July 17, 1799, and concerned Hernon, Langton & Co., Giltspur Street-" an excellent Druggists Shop, but they have of course Articles of

all prices ":

" Ung. Hydrarg. very good Conf: aromat very good Cinchon: quilled Rhabarb Turkey 18/ very fine excellent Batavian 15/
Quilled Bark fr: 9/ to 5/ the yellow 3/
Pil: Galban: comp:

w Lane there was "a l very good excellent."

In Cow Lane there was "a large wholesale shop but doubtful." In Chiswell Street, at No. 48 ("an indifferent Shop but premises fair"), the cinchon was "an old Shopkeeper." Another shop in Chiswell Street "was visited last year it cannot ever have been worse than it is, & it is recommended to future notice." In 1801 "no shop can be worse" than

one at St. Martin's le Grand.

Occasionally the books give glimpses of the actual chemists. Pharmacists were not all like the Master at Hatton Garden in 1800 who was "not civil" and whose "drugs in general not very good." or the others whose aggressiveness upset the censors. Mr. Clifton had come from "the [Apothecaries] Hall" to start his shop in Lower Street, Islington, in 1798, "& makes a great part himself." "A fair man, rather a second-rate shop," was the verdict here. Mr. Dundas, Watling Street, when visited in January, 1731, had no medicines; "going to Leave off Trade" being the explanation. At Turton's, 8 St. Martin's le Grand, in 1799, the censors found "Mr. Margetts in the Shop who intends to take the business." One feels sorry for this incoming pharmacist. It was "a very bad Shop indeed."

In the report on Allen's (later Allen & Hanburys, Ltd.) of

Back indep: Jand Opin good
Rhubarb in root none
Jo Power good Len: Elect: The see to not will posse Sper Connam: - adulter ated now Gum Ammon very vad good mynh tolerable Holim Mit

Mr. Armstrong's shop in George Street is clean, even if some of the drugs are not all they should be.



The Plough Court pharmacy of William Allen is, as one would expect, "an Excellent House.

Plough Court, made in May 1824, a printed notice slip has been affixed with sealing wax. It reads:
"Plough Court, Lombard Street,

31st of 12th Month, 1822.

"WILLIAM ALLEN and CO. being desirous of removing any anxiety on the subject of Oxalic Acid, which has but too frequently been mistaken foe Epsom Salts, have concluded to decline entirely the sale of crystallized Oxalic Acid. In stating this, it is proper to add, that no accident has ever been known to result from the article supplied from their house."

It is not unexpected to note that the Censors found this "an Excellent House."

The Apothecaries' Hall-it will be recalled that the Company carried on a manufacturing business there until 1922—was not exempt from inspection by the censors. A typical entry is that of 1763: "The Censors examined many of the Capital medicines both chemical & galenical & found them all exactly as they should be." Again, in 1766: "All Things good. The Laboratory in excellent Order."

Final Entry

This fascinating series of reports comes to an end in 1856. The final entry, of the visitation on Saturday, March 29, 1856, concerns the pharmacy of Sequeira, 38 Jewry Street, and is as follows: "Weights

satisfactory. Measures (one broken) Pharmacopæia. Translation, 1851. Poisons kept separately from other drugs. Oxalic acid. Kept in blue bottle. Sp. Æth. Nitrici—good (not enough to try sp. gr.). Syrup of Poppies—good. Liq. Ammon. Acet. Sp. gr. 1.024, Alkaline. Camphor improperly labelled. Rhubarb in powder, Good. A dirty & slovenly shop. Improved since last year.

ACKNOWLEDGMENTS

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THE **FIRST** CHEMIST

Since it was from the Arab world that chemistry Al Chemie, took its name, it is logical to look to the Middle East for the story of the man who can fairly be described as the first chemist. In the paragraphs that follow, a Muslim writer describes the "father of chemistry," Gebir, and other Arab chemists of the seventh to the fourteenth centuries.

By RAFIQ M. KHAN

NCE — and over a period of seven centuries — the pioneers of scientific thought and development, the Muslim nations of the Middle East are at the beginning of a revival of their natural intellectual brilliance that can well bring them back into the forefront of progress.

Of their past scientific achievements the world at large knows all too little today. What is generally admitted is that, when the Greek and Roman empires fell into decay and again when Mongol hordes of destroyers poured into Europe and south-east Asia under the dreaded Gengis Khan and his descendants-it was the Arabs, Syrians and Persians who saved civilisation from total extinction. Even so, the seven centuries from A.D. 650 to A.D. 1350 were Europe's Age of Darkness, when barbarism and superstition held equal sway. The scientific knowledge of the olden Greek philosophers, imperfect though it was, would have been entirely swept away and lost, but for the work and enlightened outlook chiefly of the Arabs, helped by the Syrian and Jewish translators who were then their subjects. The early Caliphs, like Al-Mamoun and Haroun-al-Raschid of Baghdad, or Al-Hakam of Cordova, scoured the Middle East to save precious manuscripts, and established great universities where the wisdom of the ancient Greeks was studied and further developed.

While it was in mathematics, astronomy, physics and medicine that the Arabs and Persians excelled, they gave a great stimulus also to chemistry. Even the name the science bears is of Arab origin. The basic knowledge at which they arrived not only took the world far past the primitive surmising of the Greeks, but, by the spirit of investigation and experiment which it awakened, led to the greater results from which modern chemical science has grown.

From the translations of the Hellenic philosophies the Arabs took over the belief that baser metals could be transmuted into gold. Even so recently as at the end of the seventh century A.D.—that is, shortly after the advent of Islam-an Arab, Khalid ibn Zeyid, is found writing on the subject, which in time became known as "al chemie," or alchemy. Those early theories found their fullest expression

in the experiments and writings of the famous alchemist known as "Gebir" (or Geber), whose real name appears to have been Abu Musa Jabir Ibn Hayyan, son of a druggist of Kufa, an oasis in Arabia.

While the origin of this rather mysterious "Father of Chemistry" is still a matter of disputation among savants, the generally accepted version is that Gebir was born about A.D. 721 at Tus, near the Persian city of Meshed, where his father had become an agent of a rival Caliphate dynasty. Gebir was sent to Hinyari in Arabia for his studies, after which he presumably went to Baghdad, where he became a close friend of the celebrated Haroun-al-Raschid's ministers. Retiring eventually to Kufa, he made it the scene of his main researches, and the remains of his laboratory were found two centuries later when the Damascus Gate quarter of that town was being rebuilt.

An Ingenious Experimenter

Gebir's fame is based upon his undoubted skill and ingenuity in the field of experiment, but his theories are embodied in over 100 books, many of which still exist. Unfortunately, only a few of his smaller works have been translated into any modern language. Nine of his theses (translated by O. Houdas) are to be found in M. P. E. Berthelot's "La Chemie au Moyen Age." It is claimed that Gebir was the first to describe the preparation of nitric acid and other chemical processes. His main notions are to be found in his books on alchemy: Book of the Kingdom, Little Book of the Balances, Book of Concentration, Book of Eastern Mercury and others. In them he revealed his theory of a geological formation of metals: the so-called sulphur-mercury theory, wherein he held that the six principal metals differed essentially from each other because of the different proportions of sulphur and mercury they contained. Among the processes Gebir described was the preparation of substances such as basic lead carbonate, arsenic, and antimony from their sulphides. Sarton enumerates the practical application of Gebir's investigations as being: "Refinement of metals, preparation of steel, dyeing of cloth and leather, varnishes to waterproof cloth and to protect iron, use of manganese dioxide to colour glass and iron-pyrites for writing in gold, and distillation of vinegar to concentrated acetic acid."

Although Gebir never professed to have succeeded in converting metals into gold, his experiments and theories were certainly directed towards proving that silver, lead, tin, iron and copper respectively could be raised into the form of purest gold by the use of "Kimya," a secret powder or "elixir," which would remove the defects in their purity and proportions. That notion, of course, was a development of Greek science and occult philosophy. What is important is the empirical method which Gebir followed, and for which he evolved apparatus and instruments that became the basic equipment of all subsequent chemical investigation. He gave a list of many such items, including crucibles and retorts, the prototypes of much subsequent development.

Gebir was followed by many others of his race who sought the same goal of transmutation, and alchemy remained for several centuries an obsession with Middle East scientists, eventually passing into Europe itself. Al-Kathi (c. 1034 A.D.) wrote on the subject in terms similar to Gebir; Al-Tughrai (c. 1112) listed the secret names of the Arab alchemists' ingredients; Al-Jawbari (c. 1220) exposed 300 ways in which the innocents of his age were defrauded and tricked by money-changers, quacks and alchemists, and gave many historical facts relating to Muslim alchemy and technology. In 1260 there was Al-Iraqi, with his insistence upon secrecy, but who yet provided many drawings of apparatus. Other Muslims, like Al-Kindi (c. 813) and the great sage Avicenna (c. 980) denounced alchemy as an imposture. The immortal physician-scientist Rhazes confessed his own failure and poured scorn on quacks.

There were early practical applications of the discoveries they and other Arab scientists made, and it is noteworthy

that warfare was even then claiming the attention of chemists. In 1294 Al-Remmah (a cavalry expert) described recipes for incendiary and pyrotechnic devices with a saltpetre basis, and explained how to prepare and purify them with potash and repeated crystallisations. In 1339 Mirak gave recipes for powder to be used with the war-engine named "midfa'u" and with incendiary arrows and rockets. Industrial purposes were by no means lost sight of. In the thirteenth century Al-Kashani wrote a unique account of the technique of glazing earthenware (for which his own city was renowned). In it, according to Sarton, he discussed the ingredients for faience, their mixtures and combinations, kiln processing and implements, and methods of glazing and decorating. Among the ingredients mentioned (some being of local origin) are clay, borax, felspar, cobalt, lapis lazuli, copper ores, lead and tin. Materials for tanning, dyeing, hardening of steel (witness the proverbially fine blades of Damascus and Toledo) were other important discoveries of the Arabs. Nor were purely scientific products lacking: Al-Jikaki, for example, the last important writer on alchemy, discovered that substances do not react except by definite weights, and he used nitric acid to extract silver out of gold-silver alloy. Rhazes, who was one of the earliest to attempt the classification of chemical substances and like Avicenna was for centuries a great influence on Europe, introduced white lead (the "album Rhesis" of the West). Even so early as the tenth century Abul Qasim had written on the preparation of drugs by sublimation and distillation.

Medical science, in which the Arab world had attained a standard of efficiency far surpassing anything of the kind in contemporary Europe until long after the Crusades, was a vastly important stimulus to Muslim chemical progress. The splendidly equipped hospitals that adorned many Middle East cities had their own dispensing sections, and there were itinerant chemists from whom the people in the towns and villages could buy ingredients to compound for themselves the prescriptions given to them by their physicians. In the search for such ingredients, Muslim botanists acquired a great store of knowledge of simple drugs. Muslim surgeons too, were far better trained and experienced than their contemporaries in Europe. It was at their instigation that, in the tenth century, the Persian Abu Mansur Muwaffak made known to the world his discovery of plaster of Paris—a surgical aid that was not rediscovered in the West until 1852.

And now today the countries of Islam, after having lapsed into an intellectual slumber of four centuries, are awakening to the scientific realities of modern-day life and are preparing eagerly to revive their past traditions. Quietly and unobtrusively, in Turkey, Iraq, Saudi Arabia, Pakistan, Egypt and Persia, there is proceeding a veritable twentieth-century Renaissance, and at such a pace that Europe or America can no longer venture to speak of those countries as backward nations.

Still the Capacity to Achieve

The impact of Western culture and democracy has stirred the people of the Middle East Muslim lands not only into a mood of great curiosity, but into a desire to share in all the good things of the modern world, and to play their part also in uplifting the earthly lot of mankind. New vistas have been opened to their eyes-and in return they realise, remembering the astonishing history of their intellectual supremacy of the Middle Ages, that they still have the capacity to achieve. They are swiftly educating and equipping themselves, therefore, for the day when once again they will be in the van of progress. Laboratories, factories, technical schools, travel scholarships, vast irrigation and hydroelectric schemes, geological discoveries, radio communications, electronic devices—all are playing their part in the Middle East awakening. The West will watch with interest and understanding and will hail with satisfaction such new contributions as the Muslim scientists can again give to civilised progress.

The DEVIL upon DUN:

The Downfall of the Upstart CHYMIST:

Being the Second Edition of a Late SONG: To the Tune of Smoak us, and chook us.







Mongh all Professions in the Town, Held most in renown, From the Sword to the Gown, The upstar Chymist rules the Roast; For He with his Pill Does even what he will, Employing his skill, Good subjects to kill, That he of his dang rous Art may boast of the fire. Who by his Black Art Does Scall and Body part: He smooth may boast see the smooth subjects and all advantages.

And leaves see like Doen in the mire.

And first for the Lawyers, who multiply,
That one can scarce lye,
And th' other stand by,
Five Grains took of th' grand Preparation,
Their Bodies will maull,
Thin Westminster-Hall,
Cease Suits, and give a long Vacation.
O'tiathe Chymis, &c.

At th' Seffions house he commenc'd his Trade,
Where he aloud pray'd
For th' King, long he stay'd
Not there, being burnt in th' hand
To inure him to fire,
He proceeded then high'r,
Restless in desire,
Till he of a Chymist had the Brand.
O'tis the Chymist, &c.

As for the Parsons, both Pro and Con,
Dispute, and Objection,
Can't fave them, th' Chymist anon
With th' Elixir can soon end the strice,
Straight silence them both,
Who it agree are loch,
For th' Ginny-pigs sake, though
Their quarrels give th' Old Cause new lite.

Alfo the Souldier, that man of Arms,
Who never fears harms,
Nor any frein alarms,
Let this Chymist enter the Field
Ev'n with a General,
The brav'st Collonel,
A Pill, or Sublimate will make them yield.
O'tis the Chymist, O'c.

Dull Arifoste was an old Fool,
For he went to School
Inflead of the Stool:
What he wrote, he stole from Books;
This mysterie is such,
Say who can too much
In it? whose deadly touch,
Makes Bum-foder scarce, it who twice brooks?
O'cie sho Chymist, that man of the fire,
Who by his Black, Are
Does Soul and Body part:
He smalls, ms, and chooks such

The learned Universities,
Ancient as Minee pies,
Say that all are lies,
But Emperick-like hee'll make them broil
Like Sprats on the cole,
Leaving them no foul,
But make a deep hole
To bury their old heathenish foil,
O'us the Chymif, &c.

Old Phylitians never writ
Ought of real wit;
But what was most fit
To be resin'd by th' Chymical Art;
Rubarb, Senna, and Drugs
Ev'n like to College Mugs,
Which the Sophilter of sugs,
Nothing comes, but a Metaphysical F—
O'tis the Chymist, &c.

'Gainst Hippocrates and Galen eke,
These Saints have a peke,
'Cause they wrote in Greek;
With Learning they'l not trouble the Brain,
The Mother-tongue alone
Kills dead as a stone;
This done with th' fifteenth part of a Grain.
O'tis the Chymist, &c.

The College Doctors with great heat,
Do very much brow-beat
So desp'rate a cheat;
Using pyou'd methods safe to cure;
Yet these Chymistic cry,
Who dares it deny?
At caste rates they'l make all sure.
O tis the Chymist, Ore.

If Wife of Husband, or Husband of Wife,
By reason of strice
Are we'ry, Or Fathers life
Hinders th' Heir; his Laboratory
Can perform with hast,
Without much distast,
What Indian poyson cann's supply.
O'sis the Chymist, that man of the fare,
Who by his Black Art
Does Soul and Body part:
He smoothy we, and chooks su,
And leaves we like Dun in the mire.

The learned Chymists we don't decry.
Natures Mystery
He most faithfully
Unlocks: But our opstart Chymists bee
A meer mushroom strain
Who give Folks their bain
Very Quacks in grain,
They, and the Sexions are in Fee.
O' vis the Chymist, O'c.

How fay y' Sirs, shall these practice then,
Very expert men
T'kill, Diek, Tom, and Benk
Nay, rather let this Chymical Crew,
Be sent to Algier,
That Trade may be free'r:
They'loutdoe a Navy, give the Devil his due:
O'iis the Chymish, &c.

Then may New Troy with Citizens fill,
Being (secur'd from ill,
Then no printed Bill,
No Almanack; no Tradefman's Shop
Shall th' Elizar vent,
To make t xperiment
On liege people, killing with one drop.
O'ns the Chymist, &c.

Now to conclude, let's mertily fing
God blefs Our Good KING
From the Dragons Sting,
Heavens preferve him Ages about:
For none of his Foes
The Common-weal oppofe,
As every one knows,
By their great hurt, and woes,
Than th' Quack and this Chymical Rose.
O'tu the Chymift, &c.

LONDON, Printed for Nathaniel Brooke at the Angel in Cornhill near the Royal-Exchange, 1672.

Reproduction of a broadsheet published in London in 1672. "Dun" probably refers to the hangman of that name. The engraving represents, on the left, a chemist's assistant pounding in a mortar; centre, the devil attending a still, the receiver of which he holds in his hand, exclaiming "The Spirits are mine"; right, a patient on his deathbed. From the mouths of the three figures on the right stream the words "Thankes to the Chymist"; "Sumus Fumus"; and "Not by art but Chymicallie." The reproduction is from an imperfect copy of the broadsheet and the lettering of the title has been completed in outline by a C. & D. artist.

[From the Print Room of the British Museum]

Third City of Scotland

ABERDEEN

1955's Conference Centre

A BERDEEN is probably best known for its granite buildings, humorous stories, and in pharmaceutical circles for its considerable reputation as a Conference centre. This year will see the fourth visit of the British Pharmaceutical Conference to the silver city by the sea.

Granite, Fish and Agriculture

The prosperity of Aberdeen rests mainly upon granite, fish and agriculture, but there are many subsidiary industries also, such as paper-making, rope-making, ship-building and a flourishing engineering trade that is concerned with the provision and maintenance of machinery for all those other industries. The pharmaceutical and chemical industries are represented and the city has also a reputation as a holiday resort. For besides the usual amenities of a city it offers a good beach—it stands on a bay of the North Sea between the mouths of the rivers Dee to the south and Don to the north—many fine parks and an invigorating atmosphere.

The first thing that strikes the visitor is the freshness and cleanliness of the city. The sparkling granite of its buildings contributes in no small measure to that impression.

Aberdeen can boast of many fine granite buildings. One of the best examples is considered by many to be the perfectly-proportioned Music Hall in Union Street, the main thoroughfare. The building was designed by Archibald Simpson, among whose work was also the older part of Marischal College. The front of the latter College

was built in the present century and is regarded by some as the finest granite building in the world. It is certainly an impressive one. The fourteenth century Cathedral of St. Machar is the only granite one in the British Isles.

Garthdee House, at which a Conference garden party is being held at the invitation of Councillor T. Scott Sutherland (chairman, Moore Medicinal Products, Ltd.), is situated on the north bank of the Dee to the southwest of the city near Bridge of Dee. With extensive lawns, walks down wooded slopes to the river, the site is an excellent one for such a function. The house itself was built in the 1870's by John Smith, who was also the architect of Balmoral Castle. In fact the two lodges are replicas of the lodges at Balmoral Castle.

The Beach Ballroom is a modern building that of its kind must be one of the finest in the country. The main hall is octagonal-shaped with high domed ceiling and is itself so pleasant as to ensure the success of any function held there. Conference visitors will find that out later this year for it will be the scene of several Conference events.

There are many fine bridges over the Dee and Don. Best-known and most beautiful perhaps is the Auld Brig o' Balgownie, said to have been built by Robert the Bruce in the thirteenth century, and one of the oldest historical bridges still in use. The parks include Duthie, Victoria and Hazelhead. There are also spacious golf links.

Aberdeen was granted corporate



Mitchell tower, Marischal College



Above, Town Hall. Below, Mercat Cross





Music Hall, Union Street



Union Street looking south-west

rights by a royal charter of King William the Lion in the twelfth century. The city was burned down by the English King Edward III in 1336. The new town that was built was called New Aberdeen to distinguish it from Old Aberdeen, which now forms only a residential suburb just south of the Don. Old Aberdeen or the Aulton, as it is known, has a separate charter, history and privileges. There is no distinction, however, between it and New Aberdeen for parliamentary, municipal or other purposes. Old Aberdeen was incorporated in the new city in 1895. The city suffered much during the struggles between the Royalists and the Covenanters. In the Scottish wars of Independence led by William Wallace and Robert Bruce, Aberdeen supported both. The city's motto "Bon Accord" is said to have been a watchword used by supporters of Robert Bruce.



Brig o' Bolgownie



Fishmarket

The layout of Union Street and King Street commenced in 1801. At the same time an expansion scheme was begun in the harbour.

Aberdeen University was formed by the incorporation in 1860 of King's College, which is situated in Old Aberdeen, and Marischal College in Broad Street in the new town. King's College was founded in 1494 by Bishop Elphinstone ("the good bishop"); Marischal College by George Keith, fifth Earl Marischal of Scotland in 1593. King's College was the first university in Britain to offer a course in medicine. James Gregory, first prescriber of Gregory's powder and teacher of medicine in Edinburgh from 1776 to 1821 was a son of John Gregory, mediciner at King's College, 1755-64 and grandson of James Gregory, mediciner at King's College, 1725-32. Thomas Clark, M.D., who devised the well-known test for hardness of water, was appointed to the chair of chemistry at Marischal College in 1833. Sir Erasmus Wilson, the dermatologist, founded a chair of path-





Interior and exterior, Beach Ballroom

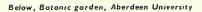
ology at Marischal College in 1882. The Crown Tower and Chapel of King's College date from 1500. The Crown is incorporated in the 1955 British Pharmaceutical Conference The present building of Marischal College was erected in 1836-41 and has been greatly extended in the present century. Dr. Charles Mitchell gave the graduation hall and the Mitchell tower in 1895 to mark the 400th anniversary of the university's foundation. A lintel stone from the old buildings of the college is preserved at the foot of the Mitchell tower, bearing the famous inscription: "Thay haif said: what say thay; lat thame say," which is said to have been the response of the founder to criticism of his appropriation (by gift from the Crown) of lands and revenues belonging to the suppressed Cistercian abbey of Deer. It was also the motto of the Earl Marischal's family. A botanic garden was presented to the university in 1899.

Robert Gordon's Technical College

Robert Gordon's Technical College was founded by Robert Gordon in 1729 as the Robert Gordon Hospital. It was in that year that Gordon conveyed his whole estate to trustees for the purpose of founding an institution for the instruction and maintenance of sons of poor burgesses of guild and trade. The Hospital was opened in 1750 for the admission of boys. It became the Robert Gordon's college for secondary and technical education in 1881. The College provides courses in pharmacy, chemistry, engineering, art (including architecture), navigation and domestic science. The head of the school of pharmacy is Mr. J. E. Bowen, B.Sc., F.R.I.C.

The hospitals in Aberdeen are arranged in three Groups, the largest being that with headquarters at the Royal Infirmary, Foresterhill. The other main hospitals in that Group are Woodend General and Morningfield. The Group is a teaching one, with the medical school situated in the grounds of the Infirmary.

Aberdeen Royal Infirmary was founded in 1739, the foundation stone at Woolmanhill being laid on January 1, 1740. It was ready for occupation in 1742. The first Royal Charter was obtained in 1773 when the beds numbered eighty. By 1883 the bed complement had increased to 182 and by 1840 to 230. In 1887 under a Jubilee extension scheme new medical and surgical pavilions and a block to serve as a laundry and pathological house were erected. In 1923 a new site for the Infirmary was obtained at Foresterhill. The foundation stone for the new buildings there was laid in 1928 and the project was completed in 1936. The out-patient department of the Infirmary is still situated at Woolmanhill.







King's College

The chief pharmacist at the Royal Infirmary is Mr. H. N. F. Kinniburgh, B.Sc., F.P.S. He is assisted by Mr. E. W. Duncan, M.P.S., whose position is that of chief pharmacist at Woodend General Hospital. The Royal Infirmary supplies all parts of the Group with bulk drugs and certain preparations including some sterile preparations. The infusion fluid department at the Infirmary supplies all the requirements of the Group and even the Sick Children's Hospital outside the Group. There is Group buying of bulk drugs and official preparations. The pharmaceutical department at the Infirmary handles all surgical instruments and laboratory supplies. The department has grown so rapidly in recent years that it has had to be allotted accommodation

wherever that has become available. The result is that although the dispensing is fairly well centralised the stores are dispersed. That defect, however, will, it is hoped, soon be rectified for a new wing is at present being built in which an entire floor has been allocated to the pharmaceutical department. It is expected to be ready for occupation early next year. In particular the new accommodation will allow a considerable extension in the infusion fluid output together with better facilities for sterile work. There will be a suite of four rooms for the preparation of infusion fluids. It will include a bottle-washing and still room. Three rooms have been allotted to a sterile syringe service; one room to a cutler who will be responsible for the sharpening of syringe needles and other surgical instruments. He will be alongside the surgical store-room. There will also be a room for small-scale manufacture, and another-a larger room-will accommodate the main dispensary which will have a cubby-hole set apart for the use of the senior pharmacist. Separate rooms will also be provided for the chief pharmacist and for the clerks.

The accommodation at present consists of an office, surgical and other store-rooms and two dispensaries. The dispensary on the ground floor deals with most of the small-scale dispensing. It contains a counter just to

the left of the entrance and behind are two glass-topped dispensing benches with drug runs forming a dispensing screen not unlike that often seen in shops. There are also the usual cupboards and sinks. The pharmacist in charge of the dispensary is also responsible for the periodical routine checking of ward Dangerous Drug stocks and records. No night service as such is provided, but certain drugs that are likely to be required in an emergency are available in the dispensary. Among such drugs are various drip solutions, for example solution of monosodium glutamate and Dextraven. In the basement there is situated another dispensary which deals with bulk items. In that dispensary the ward baskets are received each morning. They are emptied and arranged in racks. The orders are then completed and the goods sorted into the appropriate baskets. Various bulk items such as drums of methylated spirit and disinfectant are stored in the dispensary. In the basement are a bottle store and bulk-drug store room provided with metal shelving adjustable to the size of the items. In another room is kept the stock of infusion fluids. In that room also are an aseptic screen and filtration unit for the small-scale filling of ampoules. The routine estimation of sodium chloride in normal saline is also carried out there. Each batch produced is tested for sterility. Other equipment includes an ointment mill and a homogeniser.

The present staff of the pharmaceutical department of the Royal Infirmary includes, besides Messrs. Kinniburgh and Duncan, two pharmacists, a post-graduate trainee and two unqualified assistants. There are also a storekeeper and a porter storeman, a gas porter and three clerkess-typists.

The other hospital groups in Aberdeen are the special group, which includes the Maternity Hospital, the Sick Children's Hospital and the City Hospital; and the Mental Hospitals group. The chief pharmacists of the groups are respectively Mr. K. B. Stewart, M.P.S. (Royal Aberdeen Hospital for Sick Children) and Miss N. Peters, M.P.S.

The 1885 Conference Meeting

The first time that a British Pharmaceutical Conference met in Aberdeen was in 1885. In the centenary booklet of the Aberdeen Pharmaceutical Association (1939) it is noted that the Aberdeen Society of Chemists and Druggists (as the Association was then known) "made exhaustive preparations for the event, welcomed the delegates, dined them, wined them, and mainly financed the whole affair." Among the delegates were members of the Pharmaceutical Society's Council and of the boards of examiners who took the opportunity of inspecting the Aberdeen Society's rooms and of informing the Society that it had the finest and best equipped laboratory, etc., of any society of chemists in the Kingdom.

In 1887, perhaps as a result of that Conference visit, the Pharmaceutical Society made a grant of £50 to the Aberdeen Society to help its educational activities. From 1871 repeated requests by Aberdeen for financial aid from the Pharmaceutical Society, which was reaping substantial sums in examination fees, had been unsuccessful.



Abave, Entrance to Rabert Gardan's Technical Callege Belaw, Rayal Infirmary, Faresterhill



The Aberdeen Society was in fact, from its earliest, greatly concerned with the education of assistants and apprentices. Indeed it was formed (on February 6, 1839) in response to a request from those assistants and apprentices for "an opportunity to improve their minds." From 1839 to 1868 the maintenance of a library was the principal interest of the Society. Apart from the library, the chief subject of discussion at the Society's meetings during that thirty-year period was the question of shorter shop hours. With the passing of the 1868 Pharmacy Act, which prescribed a compulsory examination for those who intended to practise as pharmacists, the Aberdeen Society arranged for lectures in botany, chemistry and materia medica for

apprentices to be given at the Mechanics' Institution, which, with the original foundation of Robert Gordon. became the Technical College. In 1871 rooms

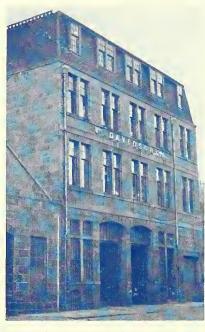


Right, Mr. Mitchell C.
Rass examines a mortar
from hls fine collectian.
The selectian illustrated
belaw are, left ta right:
A fifteenth century martar with the inscriptian
"Amen" repeated faur
times; an assartment af
Italian, Gathic and
Spanish mortars; and
an early Dutch mortor
with the inscriptian "Ian
Ariaens Ver Stege 1576".
(Ver Stege is an ald
Dutch family name.)









Left, Premises of Williom Davidson, Ltd., wholesale chemists, Polmerstan Rood.

Centre, o scene in the wet room af William Poterson & Sons (Aberdeen), Ltd., wholesole chemists.

Faot of poge, A carner of the inholer oss.mbly department of Deedon, Ltd., on ossociate campany of Mocre Medicinol Praducts, Ltd., cancerned with the ossembly, testing and pockoging of inholers. Another ossociate compony is Orthopox, Ltd., which produces a complete ronge of lotexfoom foot-sutports and foot-oids. All the componies ore housed in the Orchord Lobarotories, which is a modern foctory orronged on one floor and with the loyout designed for eass of production flow.

were taken by the Society and lectures on practical materia medica and the chemistry and botany of the Pharmacopæia,

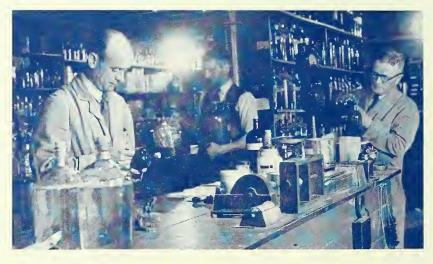
commenced. By 1872 lack of students caused the classes to be suspended and by 1874 the rooms had been vacated. In 1878-79 lectures were given by members of the Aberdeen Society in a church hall and in the latter year a museum was started. In 1881 the Aberdeen Society arranged with Gordon's College for instruction in senior and junior chemistry and botany to be given to apprentices. In 1882 the Society voted £10 in prizes for those classes. In 1882 the scope of the Aberdeen Society was extended, and it became the Aberdeen and North of Scotland Society of Chemists and Druggists, covering the whole area from Forfar to Inverness. In 1885 the Aberdeen Society took rooms to provide a laboratory, museum, lending and reference library for the use of assistants. In 1886 the number of students was about sixty and thrice-weekly classes were being

conducted in the rooms. In 1898, the year in which the name of the Society was changed to the Aberdeen Pharmaceutical Association, a school of pharmacy was established in Gordon's College. During the twentieth century the Asso-

ciation became less concerned with education than with trade interests, but it continued to donate annual class prizes to pharmaceutical students.

There are two wholesale chemists in Aberdeen. The business of William Davidson, Ltd., was founded in 1866, with premises in Castle Street. In 1901 it moved to Palmerston Road where in 1925 a fire destroyed the stock and buildings. The premises were rebuilt on the same site and comprise five floors. The orders go to the top floor and are assembled on the way down, being checked on the first floor and packed and dispatched on the ground floor, where the lorry-loading bay is situated. The cellar is used for the storage of heavy bulk galenicals. The company has a staff of sixty and a fleet of two lorries and a van. Mr. G. L. Dickie, secretary of the local committee, is a director of the company. The managing director is Mr. R. W. Allan. The company supplies chemists in Aberdeen and as far north as Orkney and as far west as Mallaig.

William Paterson & Sons (Aberdeen), Ltd., was established in 1838 by Thomas Black who had a chemist's shop in Broad Street. William Paterson was an apprentice who later took over the shop. In 1844 the business moved to 134 Gallowgate, where it suffered damage from a serious fire in 1860. In 1913 the firm had moved to Spring Garden, its present home, and the late Mr. David Ross was in charge. When he died in 1927 he was followed by his son, Mr. Mitchell C. Ross, B.Sc., F.P.S., in partnership with the widow of Mr. Stephen Paterson. She died a few months later and in 1928 a private company was formed with



Mr. Ross as managing director and Messrs. John Forsyth and W. G. Brown as co-directors. Mr. J. C. Park, M.P.S., has since become a director. The company's activities spread as far north as Shetland to which urgent medicines

are often sent by aeroplane. Mr. Ross has probably the finest collection of mortars in Scotland (see p. 727).

Moore Medicinal Products, Ltd., was formed at the end of 1939, concentrating chiefly on products for asthma and related respiratory ailments. The company now manufacture over a dozen pharmaceutical products. In 1949 the company moved to a modern spacious factory reconstructed to meet their special needs. Known as Orchard Laboratories, the factory is on one floor and the layout is designed for ease of production flow.

THE photographs of the Mitchell tower on p. 724 and of the Technical College and Royal Infirmary on p. 727 are reproduced by courtesy of the publicity department, Aberdeen Corporation.

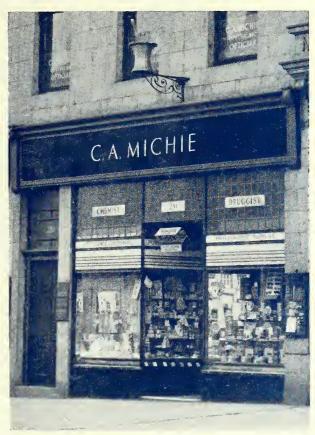


PHARMACIES OF ABERDEEN

CCORDING to the Register of Premises there are nearly eighty pharmacies in Aberdeen, host city to this year's British Pharmaceutical Conference. Notes on some of those pharmacies and on their owners are given in this short review.

Splendidly Ethical

With its granite frontage and windows flanking the doorway each graced by only two fine specie jars and a picture in the Parke, Davis history-of-pharmacy series, the pharmacy of Davidson & Kay, Ltd., at 219 Union Street, Aberdeen, presents a splendidly ethical appearance. That first impression is confirmed by the layout of the interior: century-old mahogany fittings, carboys and specie jars; well-polished drug runs. A particularly interesting decorative feature is a charming urn-shaped Wedgwood water filter. It contains a porous charcoal block through which is poured the water which passes out of the block through a porous pot, and out of the filter through a tap in the base. Facing the customer who enters the shop is a low screen surmounted by a brightly polished brass mortar. The screen divides the pharmacy into front shop and dispensary. The dispensary contains a number of dispensing benches at cer-



Mr. C. A. Michie's headquarters.

tain of which two apprentices and three trainees work on tasks that are graduated according to the degree of skill attained.

The business is traditionally said to have been established at 1 Exchequer Row by a doctor from whom it was purchased in 1823 by Peter Williamson, druggist. Eleven years later he took into partnership a former apprentice, Mr. Charles Davidson, who was to become (in 1839) first secretary of the Aberdeen Society of the Apothecaries. Chemists and Druggists (now the Aberdeen Pharmaceutical



Union Street pharmacy of Davidson & Kay, Ltd.

Association). Subsequently, Mr. Williamson opened a pharmacy in Union Street and when he left Exchequer Row Mr. Davidson took David M. Mackay into partnership. In 1851 Mr. Davidson sold the business at 1 Exchequer Row to Mr. Mackay and he himself had a block built at 205 Union Street. A feature of the new shop was a unique frieze consisting of a scroll incorporating portraits of wellknown scientists of the day. The frieze is perpetuated in photographs hanging in the present pharmacy at 219 Union Street, to which the company later removed. In 1854, Mr. J. P. Kay was apprenticed to Mr. C. Davidson and in 1862 he became a partner in the firm of Charles Davidson & Co. Later the firm became known as Davidson & Kay. In 1876 Mr. Davidson retired, leaving Mr. J. P. Kay as sole partner. About 1889 Mr. A. L. Strachan was appointed manager of a branch at 1 Alford Place. Subsequently he and a son of Mr. J. P. Kay, Mr. H. G. Kay, were taken into partnership. In 1922 Mr. J. P. Kay died. In 1929 the firm was formed into a limited company. In 1935 Mr. Strachan dicd and Mr. W. A. Park was appointed a director. Mr. Park is vice-chairman of the Executive of the Scottish

Department of the Pharmaceutical Society. He treasurer was of the Aberdeen and Northeastern Scottish Branch of the Pharmaceutical Society for twenty-one vears, vicechairman for two years and chairman for three years. He is treasurer of the Conference local committee.

> Long - established pharmacy of Mr. James Farquhar,





Corner shop of Mr. W. C. D. Bain.

The pharmacy stands almost directly opposite the Music Hall at which the opening and science sessions of the British Pharmaceutical Conference are being held.

A modern pharmacy is that of Mr. C. A. Michie (a member, Pharmaceutical Standing Committee (Scotland)) at 231 Union Street. It was purchased by him in 1932 when he modernised the premises. The pharmacy is large and lofty with dispensary at rear behind a mirrored screen incorporating glass display cabinets and surmounted by particularly fine specimens of coloured carboys. The drug counters are on the left and a number are arranged with racks to accommodate customers' bags. The toilet and photographic counters on the right feature glass displaywells. The wall cupboards are fitted with sliding glass-doors and alternate with recesses holding displays of merchandise.

Mr. A. A. Meldrum, the president of the Pharmaceutical Society, 1950-51, has had his pharmacy in Mount Street for some twenty-eight years. He is a past-president of the Aberdeen Pharmaceutical Association and a past-chairman of the Aberdeen and North-east Scottish Branch of the Pharmaceutical Society. He is deputy chairman, local committee. Mr. D. M. Wood has been in business with him for the past eight years, for about half of them as a partner. The pharmacy is tastefully fitted in the modern style.

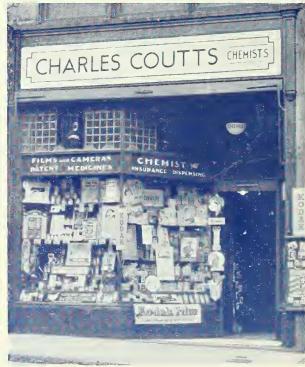
Mr. James Farquhar, M.P.S., was president of the Aberdeen Pharmaceutical Association, 1922-25. He is a former secretary of the local Branch of the Society. He was also treasurer of the Association for a period and housing convener at the 1932 British Pharmaceutical Conference held in Aberdeen. His is one of the oldest pharmacies in

Pharmacy of Mr. J. A. Young.





Above, Pharmacy of Mr. D. Dickie. Below, Schoolhill branch of Charles Coutts (Chemists), Ltd.



Aberdeen, having been established by him at 340 Great Western Road in a good-class residential district in 1908. In the older idiom also is the pharmacy of Anderson & Spence at 31 Fountainhall Road. Senior partner is now Mr. W. Spence. His partner is Mr. A. Paterson who is



Above, old-established business of Messrs. Anderson & Spence. Below, Pharmacy of Messrs. Meldrum & Wood.



supervising some of the highland dancing at the garden party that is being held at Garthdee house during the Conference. The firm was established on August 25, 1887, as the first prescription book, still in existence, bears silent witness.

Mr. W. C. D. Bain (a member of the Scottish Executive of the Pharmaceutical Society, president of the local Association and convener of the entertainments committee of the Conference) occupies a corner shop at 99 Victoria Road. The shop is in process of being refitted. A feature of some interest is a century-old shelf unit flanked on each side by a carving of the staff of Aesculapius and twining serpent. The shop is wood-panelled and well-lit by windows on all sides but one. A speciality of the business is the supply of medical and surgical stores to the merchant and fishing fleets, the customers including Polish, Norwegian and Swedish seamen. Mr. Bain has a branch in King Street.

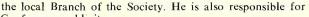
Mr. D. Dickie has, at 96 Victoria Road, a pharmacy nearly opposite Mr. Bain's. Many prominent pharmacists in the town have served their apprenticeship in this pharmacy. It was established in the late nineteenth century and has always occupied the same site. Mr. Dickie, who took over the pharmacy in 1946, was a former apprentice. The original owner was Mr. A. P. Wallace who is now over eighty years old but still an honorary member of the local Association. He was president of the Association, 1929–31. Mr. Dickie is the fourth owner. The business is mainly dispensing.

Mr. J. A. Young, M.P.S., has been in business at 68 Victoria Road for three years. Prior to that he managed a pharmacy in the city. The pharmacy he now owns was bombed out under its previous owner in 1941. The business

Bridge Street pharmacy of Mr. Robert J. Cowie.

then moved to its present site, most of the old mahogany fittings being salvaged from the original shop. Mr. Young is sports convener of the Conference.

Mr. Robert J. Cowie, M.P.S., in his pharmacy at 14 Bridge Street, specialises in the production of Scottish perfumes, which have world - wide sale. They are specially popular in Canada and the United States of America. Mr Cowie is a member of the Executive of the Scot-Department tish the Pharmaof ceutical Society and chairman of

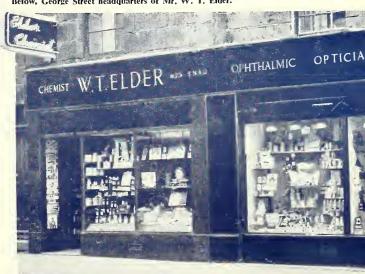


Conference publicity.

Charles Coutts (Chemists), Ltd., was established in Broad Street by Mr. Charles Coutts, grandfather of Mr. Charles D. Coutts, now joint managing director and manager of the original shop in Broad Street. Mr. Charles D. Coutts' father, the late Mr. Charles Coutts, qualified in 1904 and developed an "own proprietary" trade that still flourishes along with a strong dispensing business. Mr. John A. Neil (joint managing director) has managed the second pharmacy since it was opened by the firm in Schoolhill in 1930. He is a former president of the Aberdeen Pharmaceutical Association.

Mr. W. T. Elder, who has two pharmacies in Aberdeen, was recently re-elected for a second term as a member of the Pharmaceutical Society's Council. He has been in business in Aberdeen for some twenty-eight years. He is chairman of the local committee of the Conference, a past-president Aberdeen Pharmaceutical Association, a former secretary (for eleven years) of the Aberdeen and Northeastern Scottish Branch of the Society and a past-president of the Chemists Federation and a member of its council for ten years. He is a member of Aberdeen Pharmaceutical Committee. His headquarters are at 176 George Street, just off Union Street. He has a branch in Powis Terrace.

Below, George Street headquarters of Mr. W. T. Elder.







ENGLISH DELFT DRUG JARS

By Agnes Lothian



1. Commonwealth period, dated 1659. H. 7½ in. From the collection of Mr. Geoffrey E. Howard.



2. Restoration period, dated 1660, H. 8 in. Crown copyright, Courtesy of British Museum.



3. Syrup of Five Roots, dated 1666, H. 6½ in. In the possession of Mr. Dan Clare, Cranleigh.



4. Lohoch of Fox Lungs, dated 1668. H. 8 in. Museum of the Pharmaceutical Society.

HE English drug jar design which has come to be known as that of the Angel-with-outspread-wings was introduced about the time of the Restoration and lasted until the end of the seventeenth century, possibly a little longer.

This characteristic decoration appears to be related to a late Commonwealth pattern¹ where the name of the contents is inscribed on a ribbon-like scroll, the ends of which terminate near the base enclosing the date and sometimes initials. One of these Commonwealth drug jars is depicted in Plate 1. This ointment pot, V. AREGON, dated 1659, is from the Howard Collection. It is painted in a clear greyish blue. The glaze, as is usual with "Lambeth" delft of the seventeenth century, is white tinged with pink.

Unguentum Aregon (the V signifies U for Unguentum) was also known as the Helpful Ointment. It was prepared from about a dozen herbs together with gum resins in a base of bear's grease. butter and spice.

As will be seen from the Restoration drug jar illustrated in No. 2 the "Angel" design is basically the scroll pattern surmounted by the head of an Angel whose wings are spread out over the inscription. The folds of the scroll form compartments underneath on either side. That on the left usually contains the initial letter of the name of the drug. On early specimens the right hand compartment may contain an ornamental cipher, more rarely the date. The pennants formed by the divided ends of the ribbon are a characteristic feature of these quaint seventeenth-century drug jars.

This pattern persisted for a few years after the Restoration. See No. 5a.

 [&]quot;Lambeth" delft is a generic term used to denote tin-enamelled earthenware made in London at the delft potteries on the Thamesside.



5a, b and c. Drug jars dated 1661, 1672 and 1669. Museum of the Royal College of Surgeons.



6. "Angel" wearing Florentine cap, dated 1674. H. $7\frac{1}{2}$ in.

The syrup pot S. TVSSILAGIN, dated 1660, must be one of the earliest examples of an "Angel" jar. It is reproduced by courtesy of the Director of the British Museum.

Tussilago or coltsfoot, a favourite remedy for coughs and consumption, was "often used and with good success taken in a Tobacco-pipe, being cut and mixed with a little oyl of Annis seeds." Syrup of Coltsfoot, made from the juice of the plant, was prescribed extensively by the apothecaries for inflammation of the lungs.

The extended title of S. DE QUI + RADIC., dated 1666, shown in No. 3 is SYRUPUS DE QUINQUE RADICIBUS or Syrup of Five Roots. The five Opening Roots were smallage, asparagus, fennel, parsley and butcher's broom. [The same inscription occurs as S. DE 5 RADICIB. on a syrup pot dated 1678 in the London Museum. See No. 8. S.E.5 Q. RAD. is still another version.]

LEPVLMVVLP on No. 4 (Museum of the Pharmaceutical Society) seems somewhat obscure until two of the V's are replaced by the letter U. The inscription is then seen to be L. E. PULM. VULP., Lohoch è Pulmone Vulpis or Lohoch of Fox Lungs.

What a Lohoch is

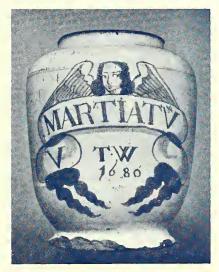
According to Nicholas Culpeper "Lohoch is an Arabick word, called in Greek Eclegma, in Latin Linctus and signifies a thing to be licked up. It is in respect of Body, something thicker than a Syrup and not so thick as an Electuary. Its manner of reception is with a Liquoris stick, bruised at the end, to take up some and retain it in the mouth, till it melt of its own accord." In his translation of the 1650 London Pharmacopæia he gives the recipe for this lickpot as "Fox Lungs, rightly prepared, juyce of Liquoris, Maidenhair, Annis seed, sweet Fennel seeds of each equal parts, sugar dissolved in Coltsfoot and Scabious water and boyled into a Syrup."



7. Liniment of Arcaeus, dated 1677. Courtesy of Yorkshire Museum,



8. Syrup of Five Roots, dated 1678. In the London Museum.



9. Soldier's Ointment, dated 1680. H. 6¹/₄ in. Crown copyright, British Museum.



10. Conserve of Wormwood, dated 1683-H. 7 in, Crown copyright, British Museum,

He gives the *modus operandi* under Oyl of Foxes, together with a sly dig at the College of Physicians, the compilers of the London Pharmacopæia.

Pure Oil of Middle-aged Fox

"The Colledg] Take a fat fox, of a middle age* (if you can get such an one) caught by hunting about Autumn, cut in pieces, the skin, and bowels taken away, the bones broken, boyl him (scumming it diligently) in white Wine, and Spring water, of each six pound, till half be consumed, with three ounces of Sea Salt, the tops of Dill, Time, and Chamepitys, of each one handful, after straining boyl it again with four pound of old Oyl, the flowers of Sage and Rosemary, of each one handful, the Water being consumed, strain it again and keep the pure Oyl for use."

Culpeper] "It is exceeding good in pains of the joynts, gouts, pains in the back and reins, it heats the body being afflicted by cold, and hard lodging in the airs, whereby the joynts are stiffe, a disease incident to many in these times."

The lungs of the fox were highly esteemed for respiratory troubles in early times. Wootton quotes a Saxon document: "For oppressive hard drawn breathing, a fox lung sodden and put into sweetened wine, and administered is wonderfully healthy."

^{***} That was well put in, therefore when you have caught a Fox, bring him alive to the Colledg, and let them look in his mouth first and tell how old he is, so shall your Oyl be *cum privilegio.*"



11. The Healing Lohoch, dated 1697. H. $7\frac{1}{4}$ in. Museum of the Royal College of Surgeons.



12. William III period Jar. H. 7 in. Collection of Sir Harry Jephcott





13a and b. "Shell" design, final stage, circa 1700. H. 7 in.

One wonders if the lungs of the fox were always used to prepare this cough linctus. Indeed, more than an element of doubt was cast by Dr. Christopher Merrett in his A Short View of the Frauds and Abuses committed by Apothecaries, published in 1669, when he declared "They use Medicines quite contrary to the prescription. Sheeps lungs for Fox Lungs, the bone of an Oxe Heart for that of a Stag's heart . . . etc. . . . etc."

The decade ends with the syrup pot S. ROS. SOL. CV.S. Syrupus Rosaceus solutivus cum Senna, dated 1669. No. 5c. The smaller specimen, a lozenge jar with the date 1672, appears to be by the same hand. No. 5b (Museum of the Royal College of Surgeons, London).

T. DE GALLIMOS, is an abbreviation for Trochisci de Gallia Moschata. Made from wood of aloes, ambergris and musk, these troches or lozenges were used as an antidote against malignant disease. The worthy Culpeper says "they strengthen the brain and heart and by consequence both vital and animal spirit and cause a sweet breath. They are of extream price therefore I pass by the Dose."

The "Angel" on No. 6. S. DE. ROS. SICC., dated 1674. is one of a particularly attractive and unusual series. The Howard collection includes no less than three of these—all the angels wearing Florentine caps!

The decorative jar, LIN.ARCEI, dated 1677, No. 7, may be seen (as may also the earliest dated English bell metal mortar, 1308) at the Yorkshire Museum, York.

Linimentum Arcei was invented by Franco Arceo, a Spanish wound surgeon. Franciscus Arcaeus, to use the Latinised version of his name, was an authority on the treatment of fistula. This preparation is also known as Ointment or Balsam of Arcaeus. The recipe is given in his De recta curandorum vulnerum ratione, printed by Christopher Plantin at Antwerp in 1574. The ingredients are gum elemi, turpentine, melted stag's "sewet" and oil of St. John's wort. The modern equivalent is ointment of gum elemi. The rare English translation of his work is entitled A most excellent method of curing woundes (1588).

The 1680's are represented by two dated specimens from the British Museum. V. MARTIATV (No. 9) is Unguentum Martiatum, the Soldier's ointment. Note the symbol just above the final V indicating that the M has been omitted. This omission sign is also used for the letter N (see No. 3 QUI for Quin.).

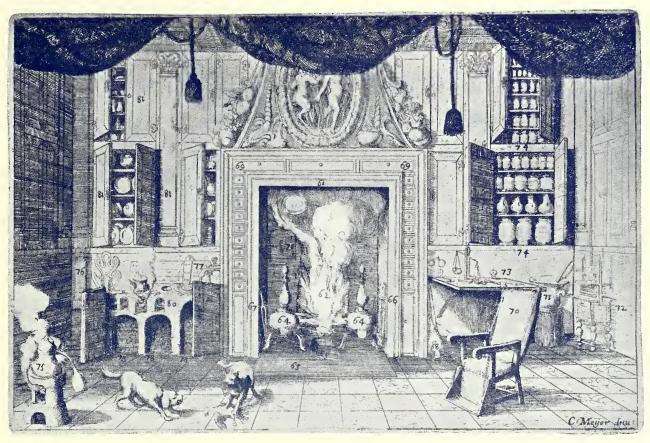
The next example, C. ABSYNTHII, Conserve of Wormwood (No. 10) dates a great number of "Angel" jars. The potteries along the Thames-side must have been exceptionally busy between 1680 and 1684 as large numbers of jars for apothecaries were made about this time. The Howard collection includes a set of eight, all dated 1684, with the initials M.H. originally made for Michael Hastings, a Dublin apothecary

On some jars (not all) the "Angels" bear a resemblance to the reigning monarch. For instance, the winged head of the titlepiece, which was drawn from a jar circa 1680, could almost be described as a portrait of Charles II. The head and wig of William III can also be identified on some drugware of the period. Dated specimens are now





14a and b. Lambeth delft Angel syrup pot showing "shell" transitional design. Late seventeenth century, H. 7½ in, Collection of Sir Harry Jephcott.



15. "Fourth wall" of an apothecary's kitchen of about 1684.

getting few and far between, although there are a number of "William" drug jars of the type shown in No. 11 with the date 1697. LOHOCh SANUM was known as the Healing Lohoch (Museum of the Royal College of Surgeons).

We now come to the last decades of the century and the transitional patterns which are so important in the history

of English drug jar design.

Of these the most remarkable is a drug pot in the collection of Sir Harry Jephcott, S. D'MECON (Syrup of Opium Poppy) illustrated in No. 14a and b. This has in addition to the traditional "Angel" design a strongly painted "shell" motif underneath the centre of the cartouche.

By the turn of the century the pennants terminating the inscription band have disappeared and are represented by a rolled up scroll at either end of the cartouche. Below is the "shell" motif. This boldly painted distinctive design, exemplified by No. 13a and b S. PAEONIAE, is the last

of the series.

On the last three "Angel" jars the blue decoration is outlined in black. Trek—the name by which this outlining was known in Holland-was first used on English delftware

about the end of the seventeenth century.

The initials on "Lambeth" drug jars are most likely those of the apothecary for whom the set was made. It is sometimes possible by comparing the dates and initials to link up sets, now long since dispersed, in various museums and private collections. For instance, many of the "vessels for apothecaries" shown here are from the same sets as specimens illustrated by Mr. Geoffrey E. Howard in his Early English Drug Jars.

The work of a particular artist on different sets can sometimes be identified. Note the initials I.W. and S.G. on Nos. 5 b and c dated 1672 and 1669 respectively. Another jar by the same hand recorded in Hodgkin's Early English Pottery, 1891, has the letters H.L. and the date 1673 and

so on.

Renodaeus,3 writing of the house and shop of an Apothecary, says: "In it there should be two doors; the one an outward door towards the street, the other postical or inward, into his kitchin, or inner chamber; wherein he may not only eat his victuals, but prudently observe through some lattice-window, what is done in the Shop, what given, and what received; and so mind his Apprentices, whether they spend their time idlely, faithfully and accurately execute their office, or do all for his good, and effect his work.

"In the other angle of the kitchin, near the Chimney, must be an Aestuary or Hypocauste, wherein he may repose his Sugar-junkets and solid confections more safely: and if the place be large enough, there may in the next place be made a Tabern, wherein he may recond many seeds, fruits, and other simples, which he buyes in great quantity; as Prunes, Almonds, Honey, Seeds, Roots, and much of Woods.

"In his Shop he must repose onely compounds, and such simples as are either rare and precious, or are of diuturnal and frequent use; as Tamarinds, Raisins,

Liquorice, Polypody, Senny, &c.

And that his Medicaments may be duely disposed in his Pharmacopoly, many shelves must be classically collocated therein, from the bottome upwards, upon wooden and iron nails, fastened in the walls, and the partition betwixt the kitchin and the Shop, so that some of their rowes may include lesser, some greater boxes; some, Earthenpots; some, Glasses; some Tinne-vessels; and some, Wood-vessels: so diligently and discreetly collocated, that those that are of more frequent use, may not be in the same row with those that are more rarely exhibited; but that the one sort may be neerer at hand, and the other

"The names also of the Medicaments, must be inscribed upon every vessel, and bag, wherein they are included; that the Medicament to be exhibited, may soon be seen. and not mistaken for another."

The engraving at the foot of p. 735 portrays an apothecary's kitchen of about 1684, showing his drug jars, mortar, balance, furnace and retort. Another aspect (not illustrated) pictures his globe, thermometer, microscope and mathematical instruments as well as a spy glass for "seeing who is passing in the street." The kitchen, which is equipped with a speaking tube and a tube "for listening to conversation in the next room" has also secret stairs leading to other apartments. Near the entrance is a small opening for "hens, which can come in from the garden and lay eggs in the room without inconveniencing anyone."

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Lothian, A, Vessels for Apothecaries. *The Connoisseur Yearbook*, 1953. Wootton, A. C. Chronicles of Pharmacy. 2 vols. 1910. Permission to reproduce photographs is gratefully acknowledged to the Directors of the British Museum, the London Museum, the Yorkshire Museum and the Editor of the Annals of the Royal College of Surgeons. My thanks are also due to the Council of the Pharmaceutical Society as well as to the private collectors whose names are mentioned in the text,

A "bright star" of Dark Age medicine **ALEXANDER of TRALLES**

Physician, Pharmacologist, Parasitologist

THE 1,350th anniversary occurs this year of an Asia Minor physician who, living in the so-called Dark Ages, has been described as "a star of the first magnitude in the general night of ignorance." He was Alexander of Tralles, Lydia, where he was born in the year 525 during the reign of Justinian. Alexander, youngest of the five sons of a physician, learnt medicine first from his father, and later from some of the most famous teachers of the day. He travelled widely, collecting many bizarre recipes in Cyrene, Spain, Gaul, Italy and Greece. Finally, he settled in Rome, where he appears to have held an official position and to have given academic lectures. Alexander stressed the value of diet, baths, and exercises. Unlike the majority of his contemporaries, he prescribed drugs sparingly. He had his own system of classification, describing them with "much sophisticated subtility," to use the words of the late Sir Clifford Allbutt, as "tonic," "relaxing," "thinning," "thickening," "drying," "moistening." Alexander is said to have been the first to mention rhabarbarum or rhubarb — though only as an astringent-and the first to use cantharides for blistering in gout. In that disease he also employed hermodactyls (colchicum) and an electuary composed of myrrh, coral, cloves, rue, peony, and aristolochia. One of his favourite drugs was castorum, which he found a life-saving measure in lethargy (apoplexy). His Hiera Tralliani contained scammony. Nevertheless he warned against the excessive use of

For patients with pulmonary tuberculosis he recommended a sea voyage. His clinical description of epilepsy is essentially sound, though some of his prescriptions are disfigured by the obtrusion of the usual Byzantine charms. When natural remedies failed, he did not hesitate to turn to magic and quackery, as witness his treatment of epilepsy with cock's testicles or with powdered ass's skull, and of an angina with the dried urine of a wild boar-a remedy which he had picked up from a peasant in Gaul. His account of intestinal worms and of vermifuges entitles him to be described as a pioneer parasitologist.

that drug. It was to be detained in the body and to be

carried to the remote parts, in order to correct the various

humours, open the passages, remove the obstructions of

the nerves, and make way for the motion of the spirits.

Alexander strikes a modern note when he urges his medical colleagues not to be guided exclusively by symptoms, but to try and seek out the causes of disease. When he was no longer able to practise, he wrote in Greek "Twelve Books on Medicine," his writings being characterised by conciseness, simplicity, modesty and definition.

^{3.} Renodaeus, J. The Pharmaceutical Shop, Englished by R. Tomlinson: Apothecary, London, 1657.

WOODEN Bygones

HE Pinto Collection of Wooden Bygones, one of the largest of its kind in a private house, is open to the public on four afternoons a week throughout the summer. The collection is housed at Oxhey Woods House, Northwood, Middlesex, the private residence of Mr. and Mrs. Edward H. Pinto, who have "migrated" to a flat on the first floor of the house in order to devote the whole of the extended ground floor to the collection.

The antiques are displayed in the windows of ten dummy shops. One of the two in the hall is that of "Leech, Apothecary," in the windows of which are assembled an extensive collection of wooden articles in day-to-day use by the apothecary several centuries ago. Wooden mortars

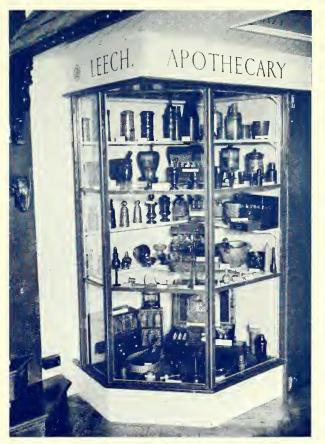


An eighteenth-century medicine cabinet.

were always carved from a single block of hardwood, lignum vitæ being the most popular because of its alleged medicinal properties. Those in the collection are of the seventeenth and eighteenth centuries or earlier, and one rare English hexagonal mortar has the date 1659 carved on its base. There are also grinders, with tight-fitting pestles, and "searces" for sieving powders.

Apothecaries' jars in the collection—among the few wooden examples still in existence—include a pair of eighteenth century beechwood jars presented by Miss Agnes Lothian (librarian of the Pharmaceutical Society). Some of the jars date back to the sixteenth and seventeenth centuries.

The collection includes several interesting examples of medicine cabinets. A Regency brass-bound travelling cabinet contains its original bottles, pill slab, pestle, mortar, etc., and hand balance-scales hall-marked.



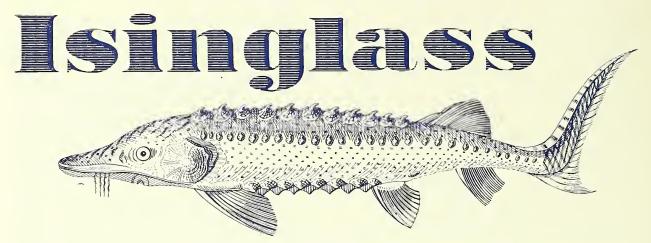
The "shop" of "Leech, Apothecary."

A selection of travelling bottle-cases foreshadows the vacuum flask, and among the more curious antiques there are a root-chopping board in elm wood, a yew wood scoop with a handle of carved Aesculapian serpents, and a cup curiously carved with frogs, snails, lizards, etc., and said to have been used for "witches brew."

The collection is open until October 9 on Wednesdays, Thursdays, Saturdays, Sundays and Bank Holidays from 2 to 6.30 p.m. on each day, admission 2s. 6d.



Walnut travelling medicine cabinet with pewter phials,



The dried prepared swim bladder of the sturgeon, the threadfin and jew-fish families and other valuable species of fish

HILST gelatin has replaced isinglass in some fields today because of cost, isinglass has properties not possessed by the former. The biggest users of isinglass are the brewers, who take by far the greatest amount of the world's production for clarifying beer and wine. It is also employed in the manufacture of court plaster, as an ingredient of leather and diamond cements and for fixing pigments in hat leathers. The use of isinglass for culinary purposes is perhaps less well known today than formerly, but useful amounts are still bought through the pharmacy for that purpose. The refined, or "patent," isinglass which is derived from a different manufacture, is generally accepted now as the isinglass of choice in the kitchen. It is manufactured either from swim bladders or from animal splits.

The value of the swim bladder as a clarifying agent has been well known for centuries, being freely used by the Egyptians, Assyrians, Babylonians, Greeks and Romans. Its value was probably discovered by the use

of the bladder as a storage vessel for wine. The usual receptacle for this was, of course, animal skins, but no doubt sea-going people made use of the bladder for the same purpose, and observed that when fermented liquor was stored in it for some time the wine became clear, whereas in animal skins it remained cloudy.

It is fair to assume that the first people to discover the properties of isinglass were the ancient Maya people, who inhabited Central America. Some thousands of years before Christ these people migrated across the Pacific; through the East Indies, the shore of and India; Malaya through the Euphrates Valley and into Egypt, where they remained until driven out by the Hykos, some fourteen hundred years B.C. On the first invasion the

people of the lower land escaped across the caravan routes of the Sahara to Timbuctoo (that seat of learning of the Moslem world), and fanned out into the country roughly from the Gambia in the north to Sierra Leone in the south.

The second exodus from the upper land was across the grassy slopes of the Southern Sahara to an area in the region of the present city of Kano, then they dispersed into the area roughly from the Gold Coast in the north, to Nigeria in the south.

A third link in the chain of connection with Central America and the Maya people was the edict published in Carthage forbidding their ships to sail "through the Pillars of Hercules to the fair lands of the West," from which they had no desire to return.

The Egyptians' relations with their former home must have been continuous for many centuries. Contact was probably lost with the fall of Carthage until Christopher

Columbus rediscovered the Continent.

The use of the bladder for clarifying liquors was carried on down the ages, but the date of its introduction into England is lost in history. Henry Jackson in his essay on isinglass, written in 1765, calculated the importation at that date at twenty-five tons annually, all from Muscovy. His object in writing the book, a copy of which is in George III library in the British Museum, was to introduce the bladders from Colonial sources in America and the Indies. He was probably one of the first to believe in Empire trade but his efforts met with little success and it was not until the East India Company brought supplies from Bombay and other Eastern ports that the



A typical fishing boat returning with its catch of bladders.

monopoly of the Russians was broken. Less than 3 per cent, of the bladders imported before the 1939-45 war came from the sturgeon, which is found almost exclusively in Russian waters. Even that small quantity has not returned to the market since the end of the war.

Up to about 1880, the main sources of supply were Russia, India and Brazil. The Far-Eastern sources were opened up at the end of the century with the great China trade. Prior to that time the whole enormous output of that vast area was consumed by the Chinese and kindred people, and even today they are perhaps the biggest consumers of this valuable product.

Origin of the Fish Bladder

The origin of the bladder in the fish goes back to the Permian Age, when the water on the earth's surface was drying up and the surviving fish lived in stagnant pools. The amount of oxygen in the congested shallow water was so little that they had to find some other means of obtaining oxygen if they were to live. Gradually nature adapted itself and gave the fish a small lung with which they could breath through their gills and so obtain sufficient of the necessary oxygen from the air.

The next age, the Jurassic, saw the return of water, and, nature again adapting itself, the fish did not lose the bladder, which was no longer required for breathing air, but put it to a new use. Instead of wasting energy in using their fins to remain at any given depth they used their swim bladder either by inflating or deflating it according to the pressure, with very little fin movement. The bladder was furnished with a set of glands which generated the necessary gases (oxygen, nitrogen and carbon dioxide) for its new hydrostatic function.

In the cat-fish family and some others, the bladder still retained its original use as well as the new function, and some members of that important family can live for periods on the oxygen extracted from the air as well as from the water. They can travel over land distances of up to 500 yards from one stream to another using their two wide-spreading fin spines (which correspond to our arms) and tails to cover the ground. The same fish also make a croaking noise vibrating the silky walls of the swim

Between the male and the female swim bladders there are marked differences. In the male bladder the fibres are of a rougher and coarser nature and the whole of a horny character. In the female the fibres are finer, and the bladder much softer with a pearly, watery appearance.

The bladder is usually relatively large, and the shape



Bales are opened on arrival and the bladders scrutinised for damage or damp. The bladders must be dry when stored.

varies considerably. Generally speaking, except in the case of the cat-fish family, the bladder follows the shape of the fish—a long tubular bladder from a long eel-like fish, a short bunchy bladder from a squat fish.

The location of the bladder in the body of the fish is not always the same. In the case of the true sac or bag swim bladder its position is below the backbone and above the stomach. It is either attached to the backbone throughout its entire length or lightly attached at two or three points. The only other common position is seen in the cat fish family where it is located well forward of the stomach to the head of the backbone. This bladder is really a lung and is divided internally into a number of chambers.

Threadfin Family

The commercial bladder-bearing fish vary considerably in size, but most bladders which find their way to the English market are obtained from fish weighing between twenty-five and 100 lb. Not all fish, as is commonly supposed, have a bladder. It is present in most bony fish but absent from cartilaginous forms. The great threadfin



After sorting, the bladders are subjected to intensive washing in large wooden drums,



Trimming impurities from the swim bladders.

family give the best types of swim bladders for preparing isinglass. Of this family, the *Polynemus sexfilis* and *P. plebeus* give the commercially called Saigon isinglass. These species are caught off Singapore and the neighbouring islands, the coast of Indo-China, Sarawak and Borneo as far south as Tawa, and, in smaller quantities, Sumatra and Java. From the *P. indicus* are obtained bladders commonly known as Penang leaf or pipe. Those fish are caught off the coast of Malaya, Burma and Pakistan, from Penang and Mergui in the south, to Chittagong in the north.

The P. quadrifilis gives the bladders commonly known as Rangoon or Penang character leaf. Fishing for these is in the waters of the Persian Gulf off Oman and Pasni, and down Pakistan and Indian coasts as far as Daman and Goa in the south.

The jew-fish (Sciaena) family give the bladders commonly known as Pasni, Karachi and Bombay leaf. The names speak for themselves—they are the same fish or near relations, but are caught in the waters of the export towns from which they take their names.

Lastly comes the great cat-fish family (Siluridae) of great importance in South America. From it are obtained

the Brazilian bladders. These, with "cake" or "purse" bladders also obtained from small species of that family in other waters, is the lowest grade imported into Great Britain. There are various other families of fish which are used but the foregoing give the main supplies.

The method of catching is mainly by line and net, although traps, spearing and other methods are also used. The fishing fleets are owned either by a village community, a merchant or individual fisherman. Quite often a fleet is mortgaged to a merchant who then has the right to purchase the total season's catch. This is a common practice in India.

On landing, the fish is gutted and the bladder carefully removed and washed in fresh water. The bladder is opened either by laying it flat on a piece of wood and cutting down the centre with a sharp knife (or panga) or impaled on a wooden spike with a slot down the centre. A clean straight cut is assured by inserting the knife and cutting down the slot. The bladder is then again washed in fresh water and put out to dry. In the Persian Gulf and South China Sea where the fishing grounds are often at a considerable distance, gutting is done at sea and the bladders put into a sack for treatment on landing. The modern fishing boats are equipped with ice chests.

When fishing communities or individuals have collected a sufficient number of bladders they either barter or sell them to a merchant or merchant's agent (known as a collector) who disposes of them to London, Hong Kong, Singapore or other purchasing centres.

Misleading Descriptions

The various trade descriptions under which isinglass is sold are misleading, and additional confusion has been added in recent years by merchants coining new names of their own. The old names date from early trading days when little was known about the sources of supply but only of the export ports. It is recognised that a more satisfactory method would be for the consumer to call for isinglass prepared from the bladder of a certain specie of fish rather than the port from which it is shipped.

When the consignments reach this country and are delivered after Customs examination to the factory, they are first carefully scrutinised for any signs of sea damage or damp for it is most important that the bladders should be in a dry condition when stored.



The drying of isinglass has to be carefully watched. Here isinglass is being dried on trays by a current of warm dry air.

Sorting and Grading

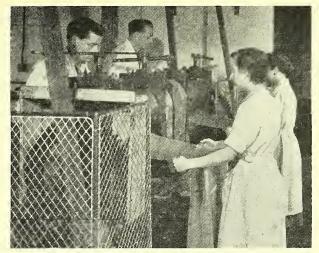
The first treatment is to sort the bladders and grade them for quality, size and sex and for individual customers' requirements. This is expert work which can only be undertaken by men with many years' experience. Next the bladders are subjected to intensive washing in tumblers—large round wooden drums—which take about 4 cwt. of leaf at a time. Water is pumped into the revolving drums by way of a pipe and throughout the whole process is constantly changed by means of holes drilled in the sides.

According to the amount of free dirt to be removed, "tumbling" takes anything from twenty minutes to two hours. When the washing is completed the bladders are taken out of the drum and drained. The next process is scrubbing by hand to clean away any skin or other unwanted matter not removed by the "tumbling." Before that process can take place the bladders have to be softened by soaking them in fresh water, to which has been added a small quantity of hydrogen peroxide. The brushes used for scrubbing are either bristle or wire.

The next stage is to condition the bladders to a sufficiently soft state to trim with a knife. This maturing, as it is called, is achieved by placing the bladders in boxes for anything up to forty-eight hours according to their thickness. The trimming with a knife removes the glands (which control the gases in the bladders) and the blood which, however great the care the fishermen take in removing the bladder from the fish, is always present in a greater or lesser degree on the surface.

In badly prepared bladders the blood will be found to have penetrated the wall, and a certain amount of decomposition will have taken place. Such bladders are valueless and are destroyed. Throughout all the foregoing treatment, when bladders are wet, temperature control is necessary and refrigeration rooms for conditioning and storage should not be above 40° to 50° Fahrenheit.

At this stage the bladders may be termed isinglass. The leaves or pipes are then ready for drying off as they are, or for rolling, cutting, shredding, flocking or whatever form is desired. If leaves are required, the isinglass is placed on nets in wooden racks over which passes dry air. The drying is carefully watched, and as the pieces dry they are removed, again sorted and graded by an expert. If strips are required, the leaves are passed through



Running off isinglass in ribbon form,

water-cooled rollers and joined into a continuous length which is subjected to slight drying and again passed through rollers to polish. The cutting machines vary according to the width and thickness of strips required, but the principle is the same. A pair of scored rollers feed the isinglass on to a cylinder fitted with knives, which rotate at various speeds according to the width of strip required.

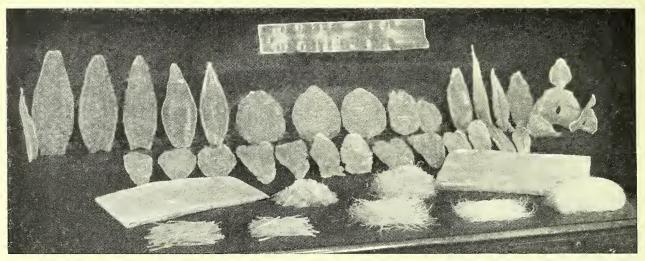
Shredding

The shredded form needs different treatment. Here the leaves are fed into special cutters fitted with feed rollers on springs to take the varying shape of isinglass. The isinglass for this form of cutting must also be practically dry. After drying, the shreds are sorted and all the ends are removed so that the bulk is free from anything that is not uniform. If flocking is required, the isinglass is first treated in a similar manner as for shredding, but then subjected to a process in a specially constructed mill.

For the American market, isinglass is subjected to intense manufacture. It is first pulped and then passed through a series of water-cooled rollers, gradually reducing its thickness until a desired ribbon form is reached. This



Drying and folding ribbon isinglass, the form insisted upon by the North American market.



Various types of isinglass before and after manufacture. The Saigon (five leaves, top left) is the finest variety.

is hung up to dry on wooden poles until nearly dry but still pliable. It is then folded into bundles, dried again and pressed.

Hydrogen peroxide is used as a steriliser and very necessary it is, since in many countries the bladders are cut out, cleaned and dried in unhygienic conditions. To-day clean-liness and freedom from bacteria are of paramount importance, hence all the washing and long processing of isinglass which is now considered desirable and necessary. The finished isinglass should be pale in colour. No amount of bleaching of the finished product will satisfactorily remove impurities which ought to have been removed in the early stages of manufacture.

As mentioned in the introduction, the use of isinglass as a fining agent is primarily confined to the brewing and wine industries. The actual fining mechanism in the clarification of wine is materially different from that in beer. In beer the success of the action is dependent upon the pH of the beer and the iso-electric points of the colloids in the finings, whereas in wine finings the larger part of the clarifying action results from alcoholic dehydration and the subsequent precipitation of the colloidal materials of the finings, which by flocculation and settling carry down mechanically much of the haze-producing substances.



Packing isinglass for the home market,

The U.S.A. is Britain's biggest overseas customer for isinglass, Australia, New Zealand and Canada being next in importance, followed closely by Europe, where it is also extensively used for clarifying coffee.

The author is indebted to James Vickers, Ltd., for assistance in compiling the text and for permission to photograph at their Coggeshall works, Essex, the various production stages here illustrated.

Onward from Galen A CURRENT CAUSERIE

Tomography, to which reference is made in the caption to an illustration on p. 691, is a radiographic technique designed to present an "optical section" of that part of a patient's body that is being examined under x-rays, During exposure, the x-ray tube and the film are moved in opposite directions, so that the shadow cast by the object at the point of pivot remains sharp. The technique finds its most important use in chest examinations, It provides the precise information necessary before surgical treatment.



RESULTS reported in the American Professional Pharmacist of a recent Gallup poll conducted in twenty-three cities and towns in the United States reflect the opinions of a section of the American public regarding the pharmaceutical profession and its members. Given a number of professions and asked to group them in order of necessary ability and intelligence, the voters placed the doctor first on the list; then came the engineer, the lawyer, the chemist, the clergyman, the teacher, the dentist, the advertising man, before the pharmacist was reached, ninth of a possible fourteen. Below him were the reporter, the contractor, the civil service worker, the department store executive and the carpenter! Another question asked the public to list fourteen professions in terms of prestige. In that list the pharmacist was eleventh, being beaten even by the advertising man and the civil servant. His only inferiors were the store executive, the reporter and the carpenter. Most revealing, too, were the descriptive terms used when the public was asked to describe a pharmacist. They were:-Clean; neat; bleached-out but not weatherbeaten; wellkept nails, soft, immaculate hands; partially bald; anti-septic look and smells like medicine; kind-hearted; dignified; usually looks somewhat worried; good memory; accurate; business-like; dependable; usually you can place your confidence in him; sincere; a cross between a salesman and a physician; seems like the family doctor; likes long hours; not too talkative, but pleasant and accommodating." Now, at least, American pharmacists know the worst. Has anyone the temerity to institute a similar inquiry in Britain?

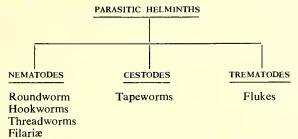
WORMS AND

ANTHELMINTICS

By S. J. HOPKINS, F.P.S.

THE worms that have selected man as their unwilling and often unwitting host rarely cause severe disease, but can and do cause an enormous amount of ill-health. Although helminthiasis is the most common disease in the world, it presents few dramatic clinical manifestations, and the disease has never been attacked with the energy its importance demands. That is perhaps due in part to the magnitude of the problem, as some 140 millions of people in Europe alone are subject to the disease; partly to the inefficiency of some alleged remedies; and partly, in some areas, to the difficulty of preventing infestation.

Man's helminth parasites can be divided into three main classes, as in the table:—



These parasitic forms show considerable differences from free living forms. They are highly specialised and adapted to their environment. The life cycle in some instances is far from simple, but a knowledge of the principal features is essential in treating helminth infestation, so that the cycle can be interrupted at the most vulnerable point.

Roundworms

Roundworms are of wide distribution, but are more common in warm climates. The adult worms inhabit the small intestine, and are 6-14 in. long. The females discharge enormous numbers of eggs, estimated at 200,000 daily. The eggs are excreted in the faeces, and development to an embryonic form is completed in soil. If the eggs are then ingested from contaminated water or food, the larvæ, about 0.25 mm. long, are released in the small intestine. They penetrate the intestinal wall, pass into the liver, and then into the mesenteric veins. After three to four days they reach the lungs and penetrate the capillary walls. There they undergo further development, and after about ten days enter the bronchi, reach the oesophagus, and are swallowed. They return to the small intestine from the stomach, and there develop into adult worms.

Threadworms

The threadworm is one of the commonest intestinal parasites, and usually inhabits the caecum. The adult females are 8–13 mm. in length, and emerge from the anus to lay their eggs on the adjacent skin. The process produces an intense itch, leading to scratching, and the infestation is kept going by transference of eggs from finger to mouth. On ingestion the eggs hatch, and the larvæ develop as they pass down to the caecum.

Hookworms

Hookworms inhabit the small intestine, become attached to the mucosa, and exist by extracting blood from the host. The eggs are passed in the faeces, and develop in moist soil to a larval state. When the infected soil comes into contact with the human foot, the larvæ are stimulated to activity, and rapidly penetrate the skin, soon reaching the veins or lymphatics. They are carried in the circulation to the lungs, penetrate the alveoli, pass into the bronchial tree, and are eventually swallowed. They then travel along the alimentary tract, and anchor themselves in the small intestine, where they develop into adult worms.

Trichinalla Spiralis

Sometimes known as the trichina worm, causing trichinosis, *Trichinalla spiralis* is of interest in having a single source of human infestation: pork. Jews and Mohammedans are consequently almost immune to trichinalla infestation. Two hosts are required for the completion of the life cycle. The adult worms inhabit the intestine, and the female produces larvæ and not eggs. The larvæ penetrate the tissues, are carried round in the blood stream, and become deposited in the muscle tissue, particularly that of the diaphragm. There the larva assumes a spiral form and becomes encysted. Encysted larvæ remain alive for years, but eventually die and become calcified. Further development is not possible until the larvæ reach another host—in man by eating undercooked infected pork—when the larvæ develop into adults and the cycle is repeated.

Filariæ

Filariæ are a cause of elephantiasis, a tropical disease characterised by hypertrophy of the skin and cellular tissues. The legs are often affected: they may swell enormously, attaining a diameter of 12 in. or more. These symptoms are due to blockage of the lymphatics by the adult worms, which are 3-4 in. in length. The females produce embryonic worms (microfilariæ) instead of eggs, and those migrate at night to the peripheral blood vessels or lymphatics. There they are picked up by mosquitoes, which act as an intermediate host. In the mosquito the microfilariæ undergo further development, and after some days reach the proboscis of the insect, ready to escape into the blood of the next human host on whom the mosquito feeds.

Tapeworms

Tapeworms are cosmopolitan in distribution, and the degree of adaptation to their environment indicates that they began a parasitic life at an early period of man's history. The most common is the beef tapeworm (Taenia saginata), and infestation arises from eating undercooked beef containing the larvæ. The adult tapeworm that develops in the intestine is a ribbon-like organism, with a head anchored in the mucosa, and a segmented body that may be 15 yds. in length. Tapeworms rarely cause severe symptoms, and the patient is often unaware of their presence. Segments of the worm are passed in the faeces. If they gain access to the soil, larvæ develop and may be

eaten by cattle. In the cattle they develop, migrating by the blood or lymphatics to muscular tissue, where they become encysted. When encysted tissue is eaten in an undercooked state, the wall of the cyst is digested away and the immature worm attaches itself to the intestinal wall of the human subject.

The pork tapeworm (Taenia solium) is similar, but the adult worm is only about 2 ft. in length. The pig is the intermediate host, but the encysted form (cysticercus) may develop in the human host if the eggs of the worm are swallowed. That may cause serious symptoms if the cysticerci arise in brain or lung tissue.

The dwarf tapeworm (Hymenolepsis nana) is only 30-40 mm. in length, but is exceptional in that no intermediate host is required. Infestation is therefore a result of direct transmission from an infected individual.

Hydatid Disease

Hydatid disease is due to the presence in the body of the encysted form of Echinococcus granulosus, a small tapeworm whose adult forms inhabit the small intestine of dogs and other carnivorous animals. If the eggs are ingested by a human host, larvæ penetrate the intestinal wall and pass to the liver and other tissues. There they encyst, but further development takes place within the cyst, which may develop enormously in size. The pressure effects of developing cysts may be serious, suggesting liver abscess. If they develop in the lungs, they may cause symptoms suggestive of tuberculosis. In other situations the larvæ die off and become calcified with few symptoms of clinical illness.

Flukes

Flukes are non-segmented flat-worms. Nearly every vertebrate is host to one or more types, and man is no exception. Their life-history is peculiar, as they all require an intermediate molluscan host such as a snail. Consequently infestation occurs only in areas where suitable snails are present. The most important group is the blood-flukes, common in Egypt, and the cause of schistosomiasis or bilharzia. Three main parasites are recognised: Schistosoma mansoni, Schistosoma haematobium and Schistosoma japonicum, all with similar characteristics and effects. The adult forms live in the portal vein and its branches associated with the large bowel, and spined eggs are laid in the small mesenteric and pelvic veins. The spines penetrate the wall of the vein, which becomes inflamed and ulcerates, and the eggs then reach the intestines or bladder, passing out in the faeces or urine. The egg subsequently ruptures and releases a ciliated larva or miracidium, which must soon find a suitable snail or perish. Further development occurs within the snail, and after about a month another free-swimming form with suckers is liberated. That organism can penetrate the skin and enter the bloodstream, and passes via the lungs to the liver. Final development there is rapid, and the adults migrate to the particular veins they prefer. Schistosomiasis is therefore acquired by bathing or washing in infected water. Immediate effects include urticaria and cough; later stages are characterised by portal cirrhosis and tissue hyperplasia, particularly in the bladder. Liver, intestinal and lung flukes are also known, but they are of less general importance, though infection may cause severe symptoms.

Treatment

The drugs used as anthelmintics present as great a variety of structures as the parasites themselves, as they range from plant sap to synthetic chemicals. At one time the drugs were referred to as vermifuges or vermicides, depending on the fate of the worm—whether expelled from the system or killed. The result depends largely on the dose employed, and the somewhat artificial distinction is therefore less satisfactory than the generic term anthelmintic.

One of the oldest drugs to be used for the purpose is extract of male fern (*Dryopteris filix-mas*). The anthelmintic properties of the rhizomes of that plant were known to the ancients, and the drug is still the standard remedy for the elimination of tapeworms. The active constituents are not clearly defined, and include a number of ethersoluble compounds. The most active constituent appears to be an amorphous acid termed filmarone, a substance that decomposes on storage into crystalline filicic or filicinic acid and aspidinol. By synthesis Robertson and Sandrock (1933) have shown that these compounds are derivatives of phloroglucinol.

Filicin is the term applied to the ether-soluble material obtained in the assay of the extract.

It is a fact of clinical experience that fresh extracts of male fern are more potent than the older extracts, and the loss of activity may be associated with the change from amorphous filmarone into crystalline decomposition products. The importance of using reasonably fresh extract will be appreciated.

Administration and Dose

Male fern is used mainly for the expulsion of tapeworms, but for the best results some previous preparation of the patient is essential. A light diet should be given for three days, with a saline purgative each night. No food should be taken on the fourth day, but a further purgative may begin. That is followed two hours later by a 60-90minim dose of ext. filicis liq., either as an emulsion or in capsules. Alternatively, the dose may be given in portions at half-hourly intervals. Another purge may be given two to five hours later in order to eliminate both the parasite and the drug. Only saline cathartics should be used, as an oily product such as castor oil promotes absorption, with possible toxic effects. The only proof of successful treatment is the finding of the head of the worm, as unless that is removed regeneration is rapid. The faeces are therefore carefully examined, but treatment may have to be repeated several times before it is successful.

Cusso

The drug cusso consists of the dried panicles of the female flowers of *Brayera anthelmintica*. It is widely cultivated in Abyssinia, where it has long had a reputation as an anthelmintic. The drug contains kosotoxin, which is chemically allied to filicic acid, and protokosin. It is usually administered in doses of $\frac{1}{4}-\frac{1}{2}$ oz. as an infusion, preceded by a saline purge, but it is less certain in action than male fern. A final purge is seldom required, as the drug itself has a cathartic action.

Pelletierine Tannate

Named after Joseph Pelletier, the famous French chemist, pelletierine is a mixture of the alkaloids obtained from the bark of the pomegranate (*Punicia granatum*). It has a definite value in the removal of tapeworms. The drug has had a chequered history, and its value is perhaps not fully appreciated. Thus it was known and used by the ancients, being commented on by Dioscorides, but, though widely used in India, it was forgotten or neglected in Europe for many years until reintroduced at the beginning of the nineteenth century. Tanret (1876) isolated and named pelletierine, iso-pelletierine, pseudo-pelletierine, and methyl-pelletierine, but later Hess and Eichel (1917) renamed some of those, and the nomenclature is therefore

confused. That perhaps explains the widely different reports on the pharmacological action of those alkaloids.

Administration and Dose

Pelletierine tannate is a powerful drug with toxic properties, and should be given only to reasonably healthy adults. Preparation of the patient is similar to that preceding dosage with male fern, and on the third morning gr. 5 of pelletierine tannate is given as an aqueous suspension; a saline purgative should be given two hours later. A common toxic effect is dizziness, but after a full dose that may lead to nausea and vomiting. The drug has a selective action on the optic nerve, and may cause disturbances of vision. The final saline purge, by reducing the time available for absorption, is therefore an essential part of the treatment.

Oil of Chenopodium

Chenopodium oil is the volatile oil obtained by steam distillation from the flowering plants of *Chenopodium ambrosioides* var. anthelminticum, and is used against roundworms and hookworms. It is of little value against tapeworms. The oil contains not less than 65 per cent. of ascaridole, an unsaturated terpene peroxide of the following structure:—

It has also been prepared synthetically by the catalytic oxidation of ∝ terpenes by chlorophyll. The drug was introduced in 1906 following the work of Brunning, and for many years it was used extensively, particularly in the U.S.A. The use of the oil is not without danger, and it has been replaced to a considerable extent by less toxic drugs. Little is required of the patient by way of preparation, as neither fasting nor previous purgation are necessary.

Administration and Dose

The oil is given in gelatin capsules, and the average dose is 0.5-1.5 c.c., administered as three divided doses at hourly intervals. Alternatively, two doses of 20 minims, with an interval of two hours between the doses, may be tried. The last dose is followed in 2-3 hours by a brisk purgative. For children, doses may be calculated on the basis of one minim per year of age, and the drug is best given on sugar. Treatment should be repeated after a rest period of 10-14 days.

Carbon tetrachloride, CCl₄

Carbon tetrachloride is widely used in industry as a solvent, and it is of interest to recall that it was used as an anæsthetic for a short time by Simpson, who introduced chloroform. Its use as an anthelmintic dates from about 1921. The tetrachloride is particularly effective against hookworm, and, as it is inexpensive, it is invaluable for mass treatment of heavily infected groups.

Administration and Dose

The average adult dose of carbon tetrachloride is 3 c.c., preferably in capsules; it should be taken fasting, a saline purge being given two hours later. For children, doses are given on a basis of three minims per year of age. The drug is not suitable for elderly patients, or for those

with any liver disease. To reduce the risk of hepatic damage, the diet previous to treatment should be of the high-carbohydrate and low-fat type. If a second dose is required, it should not be given until after a rest period of about twenty-one days.

Tetrachlorethylene, CCl₂ CCl₂

Tetrachlorethylene is similar in physical properties to carbon tetrachloride, but is less soluble in water. It is effective against hookworm, and the absence of toxic effects makes it in many ways the drug of choice. Increased tolerance is associated with the low solubility of the drug in water, as the presence of fat increases both absorption and toxicity. Dizziness is an indication that some absorption has occurred, but in therapeutic doses there is no risk of any liver damage. Dosage and administration are the same as with carbon tetrachloride, and little preparation of the patient is required, though fatty meals should be avoided.

Hexyl Resorcinol

Hexyl resorcinol, or 1:3 dihydroxy-4-hexyl-benzene,

originally introduced as an antiseptic, is one of the most versatile anthelmintics now available. It is effective against hookworm, roundworm, threadworm, intestinal flukes and some tapeworms, and the absence of toxicity is particularly valuable. Although more powerful anthelmintics are available, hexyl resorcinol is most useful when mixed hookworm and roundworm infestation is being treated.

Adult roundworms in the intestine are rarely dangerous but they may become so if stirred to unusual activity by irritant drugs. They may then block the appendix, causing symptoms of appendicitis, or migrate and invade the liver or enter the peritoneal cavity. For that reason mixed infestations are often treated with both carbon tetrachloride and oil of chenopodium, but hexyl resorcinol is a less toxic alternative, particularly for children. A single dose of gr. 10 may be given for a child under six years of age, gr. 12 for older children, and gr. 15 for adults. It is best given as an oily solution in gelatin capsules, as the powdered drug may cause ulcers in the mouth. The dose is followed two hours later by a saline purge, and the course is repeated if necessary after three days.

Betanaphthol and Thymol

Betanaphthol and thymol may be considered together, as they represent older forms of therapy that have now largely been discarded. Both were once used extensively for hookworm, but more reliable and less toxic drugs are now available.

Betanaphthol occurs naturally in coal tar, but is prepared synthetically by reacting naphthalene with sulphuric acid at about 165° , forming naphthalene beta-sulphonic acid (at lower temperatures the \propto acid is formed). The sodium salt is then fused with alkali and acidified to give the required phenol

 β -naphthol

The substance is a white-to-buff powder that darkens on exposure to light, and is only slightly soluble in water. For hookworm it has been given orally in two doses of 2 gm., followed by a purge. That dose is often effective, but toxic symptoms due to absorption may occur. The drug affects

the kidneys, and oliguria and albuminuria may result; the conjugated products such as glycuronic acid and betanaphthol-hydroquinone may colour the urine dark red.

Thymol, or 1-methyl-3-hydroxy-4-iso-propylbenzene, occurs as a constituent of many volatile oils, particularly ajowan, and may be prepared synthetically from meta-cresol and isopropyl chloride

Like betanaphthol it is effective against hookworm, and may be given as three doses of gr. 20 at hourly intervals. Toxic reactions such as nausea, dizziness and weakness may occur, similar to those associated with phenol poisoning, and the urine may be coloured green by oxidation products such as thymol hydroquinone.

Diphenan

The compound diphenan, p-benzylphenylcarbamate

has long had a reputation as a useful drug in the treatment of oxyuriasis. It is given in doses of 0.5 gm. thrice daily for one week, at the end of which a purge is administered. The course of treatment is then repeated after a rest period of seven days. The value of diphenan has often been questioned, and more recent work has shown that the drug is unreliable. Its use is declining as more active remedies are now available.

Gentian Violet

Medicinal gentian violet is hexamethylpararosaniline hydrochloride, and has the following structure:—

Long used as an antiseptic, gentian violet was introduced as an anthelmintic about 1930 for the treatment of *Strongyloides* infestations. Strongyloides is a small worm, but infestations may be self-perpetuating, as development may proceed entirely within the host apart from the ordinary free-living larval forms. Before the use of gentian violet against it was discovered there was no specific treatment against strongyloides, and subsequently the drug was found useful in threadworm infestations.

Administration and Dose

Against threadworms, gentian violet is best given as a course of enteric-coated 1-gr. tablets three times a day for one week, and the course repeated after a seven-day rest period. For children, who may tolerate the drug better than adults, doses are based on gr. 1/20 per year of age. With strongyloides a sixteen-day course is more usual. In resistant cases the drug may be given by duodenal tube in doses of 25–50 c.c. of a 1 per cent. solution. In severe cases, where the worms have invaded lung tissue, gentian violet may be given by slow intravenous injection as a 0.5 per cent. solution (dose 25 c.c.).

Santonin

Santonin, like male fern, is one of the oldest anthelmintics, and still retains its place as one of the most effective drugs for the removal of roundworms. Chemically it is the inner anhydride of santonic acid, a derivative of naphthalene, and has the following structure:—

It is obtained from the dried, unexpanded flowers of various species of Artemisia, known generically as santonica. The santonin is extracted with milk of lime, and the calcium santoninate thus obtained is converted into santonin by treatment with acid. Santonin occurs as white crystals almost insoluble in water. When freshly prepared the crystals have little taste or colour, but on exposure to light and air, a bitter taste and yellow colour soon develop.

The drug is effective chiefly against roundworms, but acts rather as an irritant than as a toxic drug. The worms are stimulated to activity, and are removed alive by a subsequent saline purge. It is important to give an adequate dose, otherwise the worms may merely become more active, and may then migrate to the appendix or biliary tract, or penetrate the abdominal wall.

Administration and Dose

Santonin is given in doses of gr. 1-3, often mixed with mercurous chloride. The admixture is traditional, and probably dates back to the use of calomel as a biliary stimulant. There is no reason why a saline purgative should not be given, though castor oil is best avoided. Santonin is absorbed to some extent, and the toxic effects are directly related to the degree and speed of absorption. Even in therapeutic doses it may cause disturbances of vision. The drug is best given after meals. More severe effects include nausea, diarrhoea and haematuria; in such cases gastric lavage, purgation and supportive measures are required.

Sodium Santoninate

It is of some interest that sodium santoninate also has ascaricidal properties. Because santonin itself has toxic properties it was for long assumed that sodium santoninate, being soluble and more easily absorbed, would be even more toxic, and in consequence the sodium salt has been but a chemical curiosity. Recently, however, that view of sodium santoninate has been questioned, on the grounds that the two substances have a different structure, due to the opening of the lactone ring in the sodium salt. Hoekanga (1954) has shown that, even in doses of 500 mgm., sodium santoninate is non-toxic and relatively efficient as an ascaricide. He suggests that the drug should be reinvestigated.

Leche de Higueron

Leche de Higueron is the native name for the latex of certain fig trees that flourish in Central and South America, where it is used as an anthelmintic. The active constituent is ficin, a proteolytic enzyme that has the exceptional property of digesting living worms. Apparently the drug has no action on the healthy gastric mucosa, but any breakdown in the protective mucous lining may lead to local erosion and possible haemorrhage. It is said to be an effective anthelmintic against roundworms and whipworms when given as the fresh sap in doses of about 2-oz. Leche de Higueron is well tolerated, and no purging is needed, but its use is severely limited by its instability, which prevents it from being shipped very far. In practice its use is confined to the countries of origin.

Piperazine

Many of the drugs used against threadworms and round-worms are old-established remedies, but alternative forms of therapy appear from time to time. The newer compounds include Nyxolan (aluminium 8-hydroxy quinoline) and Egressin (N-isoamylcarbaminic acid-3-methyl-6-iso-propyl phenyl ester). The successes obtained with those drugs have been overshadowed by the remarkable results achieved by the use of piperazine, which is now regarded by many as the drug of choice.

Piperazine, or diethylene diamine, is very far from being a new drug, as it has been used for a long time in the

treatment of gout. Its use in that connection was based on its solvent effect on uric acid, but in practice the results were unsatisfactory. The reintroduction of piperazine as an anthelmintic is due to the use of a complex derivative of that base in filariasis, to which reference will be made later. The success obtained with the derivative led directly to a re-examination of the base. Experiments on worm-infested mice showed that piperazine had a marked anthelmintic action, and subsequent clinical trials amply confirmed the experimental findings. Piperazine is of proved value against threadworms, and subsequent trials have shown that it can also eliminate roundworms. No special precautions are necessary, but after a course of treatment against roundworms a saline purge may be given.

Piperazine is relatively free from toxic effects in the recommended doses (50-75 mgm. piperazine hydrate per kilo per day) but in full doses, particularly in adults, it may cause some dizziness, vomiting, and a sense of detachment. Some consider that toxic effects of that nature are more likely to occur with the soluble derivatives, such as piperazine hydrate, which is available commercially as a pleasantly flavoured elixir, stabilised by the addition of citric acid. If a less soluble compound is required for adults, piperazine adipate may be given. It is absorbed less rapidly; up to 1.8 gm. daily may be given to adults.

Papain

Papain is a proteolytic enzyme product obtained from pawpaw, the unripe fruits of Carica papaya. The enzyme, or mixture of enzymes, is active in both acid and alkaline solutions, and can withstand higher temperatures than either pepsin or trypsin. In practice, however, papain is often less satisfactory, probably owing to the oxidation of thiol groups, with consequent loss of activity. Its activity can be restored by suitable reducing agents, and the proteolytic properties of papain, reinforced in that way, have been exploited in the new German anthelmintic product Nematolyt. That proprietary preparation is stated to dissolve the protective keratin integument of the worm, thus exposing its inner organs to the ordinary digestive processes of the body. Papain, being non-toxic, may be given in large doses. Provided protein is eliminated from the diet before treatment, good results have been claimed.

Antimony Compounds

In the treatment of schistosomiasis, which is caused by blood flukes, antimony compounds have until recent years been the only choice. Antimony and potassium tartrate and the corresponding sodium salt, given by intravenous injection as a 1 or 2 per cent. solution, are old remedies.

The initial dose is gr. 1, gradually increased to gr. 2, which dose is given daily until a total of gr. 20 has been given. More intensive courses of treatment are also used, such as gr. 2 intravenously every four hours for three doses, or every six hours for four doses. The importance of intravenous injections should be noted. Antimony and sodium or potassium tartrates should never be given by intramuscular or subcutaneous injection, as they are extremely irritant and may cause necrosis. Similarly, great care must be taken not to inject the intravenous solution outside a vein.

Both the standard and the intensive treatments may cause coughing, vomiting, colic and other reactions in susceptible patients, and several less toxic drugs have been introduced, including antimony lithium thiomalate and stibophen. Antimony lithium thiomalate, also known as Anthiomaline, is about equal in its effectiveness to the

Antimony lithium thiomalate

antimony tartrates, but has the advantage that it is less irritant, and may be given by intramuscular as well as intravenous injection. Anthiomaline is available as a 6 per cent. solution, each c.c. being equivalent to 0.01 gm. of antimony. The average scheme of dosage begins with 0.5 c.c., increasing by 0.5 c.c. until a dose of 2 c.c. is being given. The full course is about twenty injections, given two or three times a week.

Stibophen, or sodium antimony-bispyrocatechol-3:5-sodium disulphonate is also less toxic than tartar emetic,

and may be given by intravenous or intramuscular injection as a 6.4 per cent. solution. The solution soon oxidises unless acidified, and the official injection contains 0.25 per cent. of sodium acid phosphate as stabiliser. The usual dosage scheme is 1.5 c.c. initially, followed by 3.5 c.c. on the second day, and 5 c.c. on the third day; subsequently 5 c.c. is given on alternate days until 40–75 c.c. has been given. These antimony compounds are of considerable value, particularly in the earlier stages of the disease, but when the bladder tissues are affected they are less effective. They may also be more toxic when the liver has been damaged, as occurs most frequently with Schistosoma mansoni infections.

Lucanthone

The disadvantages of antimony compounds have long been recognised, and many groups of non-metallic substances have been examined for possible value in the treatment of schistosomiasis. Phenothiazine compounds were known to have anthelmintic properties, and an effective derivative was found in $1-\beta$ -diethylamino-ethylamino-4-methylthioxanthone (lucanthone). That compound, avail-

able under the names Nilodin and Miracil D, is of chief value in infestations due to *S. haematobium*; the *mansoni*-type infestations do not in general respond so well, though successful results have been obtained.

The dosage scheme is based on a minimum total dosage of 60 mgm. per kilo of body weight, given over 3-6 days.

Thus a 50-kilo patient would have 500 mgm. twice a day for three days, or 250 mgm. twice a day for six days, but higher doses may be given. The three-day course is pre-ferred, as a higher blood level is obtained. The drug appears to be well tolerated, though occasional nausea, headache or dizziness may be reported. A yellow pigmentation of the skin has occasionally been noted, but that disappears when the course of treatment is finished.

Diethylcarbamazine

While advances were being made in the control of schistosomiasis, the problem of filariasis, a cause of elephantiasis, remained unassailed. Antimony compounds were widely used, and undoubtedly they reduced the numbers of microfilaria in the blood, but the response to treatment was often slow. No available compound filled the clinical criteria of activity, tolerance, dependability and suitability for mass treatment.

The opening of the war in the Far East, with the risk of a rapid spread of filariasis amongst the troops, stimulated the search for more active and satisfactory compounds. Many groups of non-metallic organic chemicals were investigated, and eventually 1-diethylcarbamyl-4-methylpiperazine was selected for clinical trial. That

compound was found to be highly active orally and well tolerated, and to have a specific effect against many filarial parasites, particularly Wuchereria bancrofti and Onchocerca volvulus. It is available as the citrate under the names Banocide and Hetrazan, and its discovery marks a great advance in tropical medicine.

The average dose is 2 mgm. per kilo of body weight three times a day, and dosage at that rate may be continued for 2-4 weeks. As a prophylactic measure, a similar dose may be given for 3-5 days. The drug acts chiefly against the microfilariæ, and, in the milder cases of Bancroftian filariasis, improvement is rapid. With that clinical improvement the elimination of adult worms by normal phagocytic activity appears to be increased.

Good results have also been obtained in onchocerciasis, but lower initial doses (2 mgm. per kilo daily for a few days) are necessary. If the initial dose is too high, the rate of destruction of microfilariæ in the tissues is great enough to precipitate a severe toxic reaction of an allergic character. If that occurs, the drug should be stopped, and the allergic symptoms controlled by an anhistamine. After a few days it should be possible to resume treatment with the diethylcarbamazine.

Recent reports have also indicated that diethylcarbamazine is of value against roundworms. Larger doses, of the order of 6 mgm. per kilo of body weight three times a day for five days have been recommended, and results have been encouraging. Few toxic reactions were encountered provided the dose did not exceed 20 mgm per kilo daily.

Less Important Drugs

Other drugs used from time to time as anthelmintics include mepacrine, diphenhydramine, bismuth carbonate, kamala and cowhage. Kamala consists of the hairs from the capsules of Mallotus phillipinensis and, like male fern, contains as its active constituent a derivative of phloroglucinol. Cowhage, or mucana, is the pod of a West Indian plant that is covered with brown bristly hairs, very irritating to the skin. The drug is administered by dipping the pods into treacle, and scraping off the hairs until the mixture is as thick as honey. One tablespoonful of the product is then given twice a day for three days. It is said that the hairs act mechanically by penetrating the keratin skin of the worms.

Conclusions

The range of drugs used as anthelmintics is an indication of the difficulties of a successful attack against parasites that have been man's constant companions from before the Stone Age to the present time. Some of the newer compounds now available offer a greater hope of success but, so far as intestinal parasites are concerned, it may be that modern plumbing will finally break that long-established link. In the meantime, the greater part of the world's population lacks that asset of civilisation, and reliance must be placed on anthelmintics. The criteria for successful large-scale treatment include ease of administration, non-toxicity combined with efficacy, a simple regimen, and short course of treatment.

Some of the newer drugs already fill some of those criteria, and further research is in progress. Some thiazole derivatives, such as 2-mercapto-benzothiazole, have been shown to possess anthelmintic properties, but it is of some interest to note that a recent report from Russia suggests a much simpler remedy: oxygen. The gas is given by duodenal tube in doses of 1-2 litres, and the treatment is claimed effective.

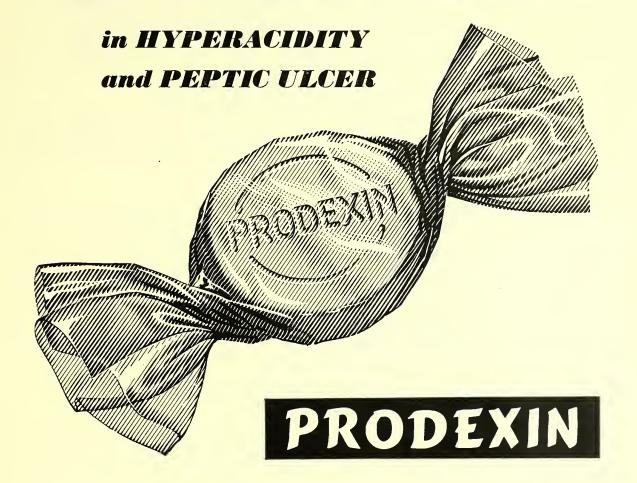
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A PHARMACIST'S ANTHOLOGY AN END TO SERVITUDE

George Crabbe to Edmund Burke, 1781

I CONTINUED two years with this man, I read romances and learned to bleed; my master was also a Farmer, and I became useful to him in this his principal occupation; there was indeed no other distinction between the boy at the farm and myself, but that he was happy in being an annual servant, and I was bound by indentures. . . I rebelled in my servitude, for it became grievous. My Father was informed of his Son's idleness and disobedience; he came, and he was severe in his correction of them: I knew myself then injur'd and became obstinate, and a second visit of my Father's put an end to my slavery; he took me home with him, and with me two thirds of the money he had advanced. He then placed me on easy terms with a man of large business in a more reputable line; but I was never considered as a regular apprentice, and I was principally employed in putting up prescriptions and compounding medicines. I was, notwithstanding, well treated in every respect but the principal one, for no pains were taken to give me an idea of the profession I was to live by. . . . I meant to serve in a shop, but an unlucky opportunity offered itself at Aldbro', the Apothecary there was become infamous by his bad conduct, and his enemies invited me to fix there immediately. My Father urged it, and my pride assented: I was credited for the shattered furniture of an Apothecary's shop, and the drugs that stocked it. I began to assume my late master's manner, and having some conscientious scruples I began to study also: I read much, collected extracts, and translated Latin books of Physic with a view of double improvement: I studied the Materia Medica and made some progress in Botany. I dissected dogs and fancied myself an anatomist, quitting entirely poetry, novels and books of entertainment. After one year, I left my little business to the care of a neighbouring surgeon, and came to London, where I attended the lectures of Messrs. Orme and Lowder on Midwifery, and occasionally stole round the hospitals to observe those remarkable cases, which might indeed, but probably never would, occur to me again. On my return I found my substitute had contracted a close intimacy with my rival. He cheated me and lost my business. The second woman who committed herself to my care, died before the month after her delivery was expired; and the more I became qualified for my profession, the less occasion I found for these qualifications. My business was the most trifling and lay amongst the poor. I had a sister who starved with me; and on her account it now pains me to say we often wanted bread.

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Prodexin has all the attributes of a true buffer, and more besides:

- it keeps gastric acidity down to an equable level (pH 3.5 to 4.5).
- it does not alkalise the stomach contents, so that acid rebound cannot occur.
- its effect is consistent and prolonged.
- it does not vary in potency.
- it is pleasant and safe to take and is free from grittiness.

FORMULA

Aluminium glycinate 0.9 gm Magnesium carbonate 0.1 gm

Reference: Practitioner, 173: 46, 1954.

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PACKAGES

Cartons of 30 individually wrapped tablets. Dispensing packs of 240 tablets.



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RECENT RESEARCH ON

Rauwolfia Canescens

AND OTHER PLANTS OF THE APOCYNACEÆ FAMILY

HE recent interest centred round the ancient Indian medicinal plant Rauwolfia serpentina (Benth.) has been fully vindicated by the medicinal properties of the alkaloids derived from that species. The Government of India early in 1954 banned the export of the crude drug, and later the ban was modified to prohibit also the export of other rauwolfia species. In view of the intrinsic pharmacological merit of rauwolfia alkaloids, chemists and pharmacologists have been active in working on alternate sources for reserpine and related alkaloids.

Even before the effects of serpentina alkaloids became known, it must be said to the credit of a school of Indian chemists that attention had been focused on *R. canescens*, and the presence of an alkaloid in the plant was noted over sixty years ago. No attempt, however, was made to purify it or to study its properties. Systematic work on *R. canescens* was started at Calcutta in 1941. Early investigations showed that a principal alkaloid is distributed throughout the plant with the root bark containing 0.1 per cent., the stem bark 0.2 per cent., and the leaves 0.5 per cent. The active principle formed thick pale yellow plates, possessed a very bitter taste, was faintly alkaline and was optically active. It showed similarity in colour reactions to yohimbine and was named rauwolscine.²

Preparation of Rauwolscine

In the preparation of rauwolscine, the leaves have been used as they contain greater amounts of the active principle than the roots. Air-dried leaves, collected from the Howrah district of Bengal, were percolated with rectified spirit containing 0.1 per cent, acetic acid and after concentration the extract was poured into water and the resinous matter separated and filtered off. The aqueous filtrate was extracted with ether and, after concentration, oxalic acid was added to form a crude oxalate of rauwolscine. This was further purified by repeated crystallisation from hot water and the pure oxalate showed a melting point of 245-46°. The free base was obtained by dissolving the oxalate in water and treatment with ammonia and crystallisation from benzene. The pure rauwolscine was found to be soluble in other, alcohol and other solvents and had a melting point of 231-32°. Other derivatives (rauwolscine hydrochloride, nitrate, sulphate and picrate) were also prepared and studied. Rauwolscinic acid was prepared by treating rauwolscine with ammonia and acidification with N/2 acetic acid when a brown residue resulted; crystallisation from hot water gave pale brown prisms of rauwolscinic acid (m.p. 262-64°). Rauwolscinic acid has also been obtained in quantitative yield by hydrolysis of the alkaloid with aqueous potassium hydroxide.3

The chemical constitution of rauwolscine has been the subject of much detailed study by the Indian workers. The skeletal formula of rauwolscine has been suggested after consideration of several fragments like harman, ethylindole, indole 2-carboxylic acid and isophthalic acid and identified from degradation products of the alkaloid. Rauwolscine does not readily undergo decarboxylation and it can neither be brominated nor hydrogenated, indicating the absence of unsaturation or of —N=C linkage in the

molecule.4 The direct evidence of the fused ring system for rauwolscine has been secured by the selenium dehydrogenation of the base when yobyrine C₁₉H₂₆N₂ (m.p. 208°) is obtained as a major degradation product. Yobyrine from rauwolscine melts 11° below the m.p. of the synthetic product, and the homogeneity and purity of the lower melting yobyrine have been established by chromatography. Yobyrine affords a ketone yobyrone C₁₉H₁₄N₂ (m.p. 183°) when oxidised with freshly prepared selenium dioxide. The ultraviolet absorption spectra and properties of yobyrone have been studied and the skeletal structure of rauwolscine established. The infra-red absorption spectrum of rauwolscine shows the characteristic bands for indole at 6-6.6 µ, for the imino band at 2.87μ , the band for a carbomethoxy at 5.8 and that for the -OH group at 2.8 m. Further spectral evidence for the -OH group has been obtained from the study of acetyl rauwolscine.7 Taking all the evidence together, and in spite of some controversy on the subject, the following constitution of rauwolscine C21H26O3N2 has been assigneds:

A ketone called rauwolscone $C_{19}H_{22}ON_2$ has been isolated and the complete crystal structure determination of rauwolscane, the hydrocarbon obtained from rauwolscine, has been done by x-ray diffraction method.

Pharmacological Action

The pharmacological action of rauwolscine had been studied more than a decade ago. This alkaloid has been found to be a depressant of the cardiovascular system in experimental animals. The important feature is that rauwolscine exerts its hypotensive action only when pressure is high. From a recent work, it has been shown that rauwolscine has a direct action on the myocardium. The drug has hypotensive action in intravenous injections in the dosage of 0.3 mgm./kilo of body weight; when the dosage was increased to 11 mgm./kilo of body weight, respiration and heart stopped. It depresses the tone and peristaltic movements of the intestine at 1:50,000 dilution. The tone of the uterus is depressed and rhythmic movement stopped at the same dilution. It also depresses the tone of voluntary muscles which became relatively hyposensitive to stimulii. It has no effect on the blood picture even on daily repeated doses.

From commercially available *R. canescens*, workers at Ciba Pharma, Summit, New Jersey, have isolated a new alkaloid which is named deserpidine, ¹² C₂₂H₃₅O₈N₂ similar in properties to reserpine, and forming colourless prisms melting at 228–32°. On the basis of analytical data, the isolation of 3, 4, 5 trimethyoxybenzoic acid by hydrolysis,

interpretation of ultra-violet and infra-red absorption spectra, the following structure has been assigned to deserpidine:-

Preliminary pharmacological experiments indicate that the new alkaloid exhibits both hypotensive and sedative activities comparable to those of reserpine. Swiss workers at Sandoz Pharmaceutical Laboratory, Basle, have isolated a new alkaloid from the same plant and have called it canescine¹³ or 11-desmethoxyreserpine. In a comparative pharmacological study of reserpine and canescine it has emerged that the circulatory effects obtained with the two alkaloids are practically indistinguishable. Like reserpine, canescine exhibits a sedative action and produces pupillary constriction.

Because of the difficulty in obtaining R. serpentina, many projects have been directed at obtaining reserpine from alternative sources. At the Riker Laboratories, Inc., Los Angeles, reserpine has been isolated from the roots of R. canescens.¹⁴ Earlier it had been separated from the central and South American species R. heterophylla¹⁵ and it is believed in some quarters that the supplies of heterophylla will bridge the gap caused by the present heavy demands for reserpine. From the roots of the African species R. vomitoria, an alkaloid named alstonine has been reported in addition to the isolation of the better-known aimaline. The bark of R. obscura also yields alstonine which is very sensitive to oxygen. Rauwolfine has been isolated from R. caffra^{17a} and semperflorin from R. semperflorens^{17b}. It is not yet known whether the new alkaloids from the rauwolfia species are as interesting pharmacologically as those from serpentina and canescens.

Since the genus rauwolfia belongs to the family

Apocynaceæ, and since medicinal properties are ascribed to other plants belonging to that family, a line of work has been initiated in India on a systematic examination of other apocynaceæ plants. From the roots of Melodinus monogymus (Roxb), a tall climber growing in Assam, are obtained the bitter glucoside melodin C25H36O8 (m.p. 128°) and the sterols monogynol A and B.18 A small genus of the same family, strophanthus, is a woody climber or small tree. The seeds of Strophanthus hispidus, native of Africa now growing in Bengal, and of S. wightianus, native of India, have been pharmacologically tested. 10 The seeds of hispidus contain one or more glycosides which are highly cardiac in action, resembling that of digitalis.²⁰ The wightianus has also been tested and found to be quite active.21

It is evident from chemical and pharmacological work during the past few years that rauwolfia alkaloids have a proven merit as hypotensives. More recent work in India and elsewhere has resulted in the isolation of newer alkaloids from rauwolfia species, which are being actively examined. It may perhaps be concluded that R. heterophylla and R. canescens among other species may lend themselves in a greater measure to the manufacture of specific drugs for the market.

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HOSPITAL PHARMACY FORUM

SUBJECTS FOR RESEARCH

T the recent annual meeting of the Guild of Public Pharmacists in London, a resolution was passed asking the council to set up a research committee. The exact function of that committee remains a little vague, but with such an obviously good intention it would have appeared churlish to disagree.

The desire for such a committee no doubt reflects the uneasiness of many hospital pharmacists that too much energy and time has had to be expended on pressing for remuneration—to the detriment of the interest in the work itself. Moreover, the Report on the Pharmaceutical Service in Hospitals drew the attention of the Minister of Health to the need for encouraging research in pharmacy depart-

The Guild's committee, when it gets to work, may be able to throw out some suggestions and co-ordinate work on certain problems of practical pharmacy. It would be foolish, however, to expect any spectacular results to follow the mere setting up of a committee. Too much high-sounding nonsense is already uttered regarding research, and it would be as well if we cleared our minds as to the possible scope that exists in hospital departments before embarking on pipe-dream schemes.

In the first place the hospital pharmacy is a busy place, with a great weight of routine work to clear each day. That work includes the stock-keeping, buying, answering queries, preparing stocks and the dispensing. Staff is not so plentiful that the chief pharmacist can, in most hospitals, give sustained time over a long period to grapple with a major research of the kind likely to earn him a research degree. Though we may wish that were not the case, wishing is unlikely to change the set-up in our hospitals in the immediate future.

The kind of research likely to be within the scope of the pharmacy department will be the investigation of problems arising in the day-to-day work, and requiring for their solution equipment normally found in the department or readily and inexpensively obtainable. There is no dearth of such problems, and they need not await the deliberations of a committee before they are tackled, Indeed, if hospital pharmacists themselves do not set about the problems individually, it is unlikely that the committee will be in much of a position to help in co-ordinating anything. The pharmacist who is likely to be a successful investigator will have an inquiring mind and such a zest for the work that he will find his own problems and set about tackling them. One of the most disappointing features of the Guild's programme is the failure of "members' nights" in the branches. It is at such meetings that technical investigations should find their natural outlet for publication and discussion. Shortly after the 1939-45 war two or three such meetings were held in London, but they appear to have lapsed in recent years.

Though each pharmacist will have his own list of matters that need investigation, we venture to mention here a few topics such as some of the more energetic of us may be stimulated to tackle. It would be salutary to have available the results of analyses of stock mixtures, as handed out to the wards and out-patients. Papers have been published in Britain and in America that give guidance on the tolerances that may be regarded as reasonable. The practice of dispensing stock mixtures from bulk is much more common in hospitals than in shops, and a comparison of the tolerances of accuracy would be interesting and valuable.

Formulation is an inexhaustible field for study, yet little has been published recently on comparative formulation. There is a tendency to leave it all to the N.F. Committee—and then grumble at their results! What, for example, is the effect of particle-size distribution on (a) the elegance and (b) the effectiveness as an antacid of magnesium trisilicate in mixtures? Has any hospital pharmacist acquired a wide

experience of the newer suppository bases, sufficient to prepare a critical review of them?

It seems to us that a busy department should throw up sufficient queries to form the basis of one interesting paper a year suitable for reading at an evening meeting. Can a committee help to that end? Perhaps the setting up of the committee shows a stirring of the conscience of some of us, or a yearning for some technical satisfaction which persists in eluding our grasp. It is an old device and one too easily resorted to in these days to salve the conscience and hide the perplexity by setting up a committee, thinking thereby that something has been done. When we find we have too many committees we then start forming co-ordinating committees. The time taken up in attending them could often be better spent at the bench or in the laboratory. The success of the Guild's committee, as of other committees, will in the last resort depend on the amount of work done by the members and submitted to it for review. If its existence serves as a reminder and stimulus, it will not have been set up in vain.

TRADE REPORT

LONDON, JUNE 22: Interest in CRUDE DRUGS was again lacking during the week and few price changes in consequence were registered. Some importers were agreeably surprised to receive their shipments without much delay despite the many dockers on strike, but the export side of their business appeared to be much more difficult.

A parcel of Curação Aloes is expected to arrive shortly and whilst most of it has already been sold the remainder was offered at a figure well under the previously quoted shipping value. In Spices, Pimento was lower and Jamaican Ginger higher. Peru Balsam was quoted about one shilling per lb. lower for spot supplies. The new-crop Senega position continued to be obscure with the price nominally at 20s., c.i.f. The tendency of Buchu is now upwards since there are no replacement offers at origin.

The market for Castor oil became firm during the week and domestic manufacturers increased their prices sharply by £10 per ton for spot and July delivery. The forward rate was up by £7 per ton. In Essential Oils, Lavender and Lavandin became easier. Chinese Anise at 18s. 6d. was sixpence per lb. lower on the spot. Chenopodium was also lower but Mysore Sandalwood continued to move upwards reflecting the tight supply position.

Di-

Pharmaceutical Chemicals

ADRENALINE.—Rates for synthetic B.P. are from 1s, 3d, (500 gm, lots) to 1s, 9d, (10 gm.) per gm, and ACID TARTRATE, B.P., from 10d, to 1s, 2d.

BROMIDES. — Potassium B.P. crystals in 5-cwt. lots are 2s, 10\frac{1}{2}d. per lb.; 1-cwt., 2s, 11\frac{1}{2}d. per lb. Powder is 1\frac{1}{2}d. per lb. more. Ammonium is 3s. per lb. in 5-cwt. lots and Sodium, 2s. 9\frac{1}{2}d. per lb.

CALAMINE.—1-cwt. lots are 1s. 7d. per lb.; 10-cwt., 1s. 5½d.

ERGOTOXINE ETHANESULPHONATE.—Price per gm. for B.P.C. (1949) is: 1 gm., 168s. 9d.; 10 gm., 155s. 3d.

HYPOPHOSPHITES. — Price per lb. are as follows:—

SALT	7 lb.	28 lb.	1 cwt.
CALCIUM IRON MAGNESIUM MANGANESE POTASSIUM SODIUM	s. d.	s. d.	s, d.
	6 4	5 11	5 6
	13 3	12 9	12 3
	10 4	9 11	9 6
	13 6	13 0	12 6
	8 7	8 2	7 9
	7 1	6 8	6 3

POTASSIUM BICARBONATE.—B.P. powder is 110s. per cwt. for 1-4-cwt. lots and 105s. per cwt. for 5-cwt. and over.

SODIUM SALICYLATE.—Rates are:—1-ton lots in bulk, 3s. 5d. per lb.; 5-cwt., 3s. 5½d.; 1-cwt., 3s. 6d. Smaller lots at from 4s. 1d. to 4s. 10½d. as to quantity and packing.

Crude Drugs

ALOES. — Prime Cape for shipment is 295s., c.i.f. Spot value is 325s. to 330s, Curação afloat is 360s, landed terms.

BALSAMS.—Quotations (per lb.) are:— Canada: spot offers are 22s. 6d.; newcrop for shipment, 19s., c.i.f. Copaiba, B.P.C., 11s. to 11s. 6d.; Peru, is 10s. 6d., duty paid; forward delivery, 8s. 3d., c.i.f. Tolu (genuine as imported), 26s. 6d. spot and 26s., c.i.f.; B.P., 17s. 6d., spot.

CHAMOMILE. — Belgian flowers as 5s. 3d. per lb. on the spot.

CHERRY BARK. — Thin natural is from 1s. 9d. per lb., duty paid, and rossed, 2s. 1d., on the spot.

GINGER.—African is quoted on the spot at 257s. 6d. per cwt., and shipment at 252s. 6d., c.i.f. Jamaican No. 3 is 370s. on the spot and 360s., c.i.f.

JALAP ROOT. — Vera Cruz, untested is offered at 3s. 9d. per 1b. Brazilian, 12·4 per cent., is quoted at 1s. $10\frac{1}{2}$ d.

LIQUORICE. — Quotations for Anatolian are 70s, per cwt.; Russian, 65s.; Persian nominal. Block juice quotations are 220s. per cwt. on the spot. Italian stick from 310s. to 475s. per cwt. duty paid.

MERCURY. — Nominal spot value is steady at £108 per flask of 76-lb. ex-ware-bouse.

NUTMEGS. — West Indian 80's quoted at 3s. per lb. on the spot and 2s. 8d., c.i.f., for shipment.

PEPPER. — Firm. White Sarawak on spot is from 3s. 8½d. to 3s. 9d. per lb. with July-August shipment, 3s. 6d., c.i.f. Black Sarawak has advanced to 3s. 2d., spot; shipment quoted at 2s. 10d., c.i.f. Black Malabar is 380s. per cwt., spot; June shipment quoted at 387s. 6d., c.i.f.

QUASSIA. — Spot quotations for chips are at about 45s.; June shipment is about 32s. 6d. per cwt.

QUILLAIA. — Whole bark to arrive is offered at 220s. per cwt., landed terms.

SEEDS.—(Per cwt.). ANISE.—Tunisian has been neglected, sellers now quoting 275s., duty paid, London. CARAWAY.—Dutch remains unchanged at 160s., duty paid, for present crop. CELERY.—Indian offering at 140s., spot London. CORIANDER.—Continues quiet. Spot. Morocco, 77s. 6d., duty paid (72s. 6d. in bond); Rumanian, 55s., duty paid. Shipment, Morocco new-crop quoted at 47s. 6d., c.i.f., for June-July. CUMIN.—Unchanged. Spot. Cyprian, 122s. 6d.; Morocco, nominal 125s., duty paid; Iranian, 120s., duty paid. Shipment, Cyprian, 108s.; Morocco, 102s. 6d., c.i.f. (both new crop for June-July). Dill.—Indian offering at 65s. on spot. FENNEL.—Indian offering at 65s. on spot. FENNEL.—Indian has eased to 87s. 6d., spot London. FENUGREEK.—Market remains firm on spot at 65s., duty paid for Morocco. New crop for prompt shipment is quoted at 40s., c.i.f. MUSTARD.—English 77s. 6d. to 90s. according to quality.

SENEGA.—Spot supplies are 24s. per 1b. New-crop position obscure, nominally 20s., c.i.f.

TURMERIC.—Madras finger on the spot is now quoted at 165s. per cwt.; afloat parcels are worth 155s., c.i.f.

Essential and Expressed Oils

Anise.—Chinese is quoted at 18s. 6d. per lb. on the spot.

BERGAMOT. — Spot quotations are now 67s. 6d. per lb.

BIRCH TAR.—Rectified is about 14s. per lb. in 1-cwt. lots.

Cananga. — Supplies to come forward are quoted at from 55s. per lb., c.i.f. Spot is from 60s. per lb.

CASTOR. — In minimum 2-ton lots the price of pharmaceutical quality for June–July delivery is £126 per ton, naked ex mill. For forward delivery the price is £121.

CEDARWOOD.—1-cwt. lots are 9s. 3d. per lb.

Chenopodium.—1-cwt. lots are easier at 38s. 6d. per lb.

CLOVE.—Madagascar leaf is 10s. 9d. per lb., duty paid and 8s. 9d., c.i.f., for shipment. Rectified, 87–88 per cent., 14s.; distilled bud oil. English, from 35s. to 40s.; imported, 18s. 6d. to 19s. 6d.

GARLIC.—English is 55s. per oz.

GINGER. — English-distilled oil is 160s, per lb. nominal, with cheaper grades down to 115s. Imported oils are now 165s, per lb., duty paid and 150s., c.i.f.

LAVENDER. — Quiet. 40-42 per cent. linalol on the spot is 80s. per lb. in 5-cwt.

LAVANDIN. — Spot is 16s. 6d. per lb. nominal.

PATCHOULI.—Penang is 57s. 6d., duty paid, and 51s., c.i.f.

PIMENTO. — English-distilled berry is 165s. per lb. with imported at 67s. 6d. Rectified leaf (imported), 27s. 6d. per lb. SAGE. - Spanish is offered at from 8s. 6d. per lb.

SANDALWOOD.—Mysore is 85s. per lb. spot; East Indian, 82s. 6d.

Sassafras.—Brazilian in 1-cwt. lots is offered at 8s. 6d. per 1b.

SPEARMINT, — Offers of U.S.P. quality vary between 33s. 6d. and 38s. per lb. on the spot. Dutch quoted at 32s. 6d., duty paid.

Tangerine. — Sicilian is scarce on the spot at 45s, to 52s, per lb. Shipment is quoted at 63s., c.i.f. Californian is offered at 17s. 6d., spot.

UNITED STATES REPORT

NEW YORK, JUNE 21: CITRATES Were commanding considerable attention and continued high costs of crude argols were having a firm influence upon the domestic market for TARTRATES, especially in the light of good sales. MENTHOL prices were steady with the market seasonally quiet. PHENOBARBITONE, U.S.P., was reduced 50 cents per lb. to \$3:50. In CRUDE DRUGS, local importers of CARNAUBA WAX were offering crude fatty wax for June shipment on a basis of 48 cents per lb., f.o.b., Brazil. Spot prices of carnauba became: No. 1 yellow, 94 cents per lb.; No. 3, NC crude, 55; pure, 63; technical, 60; and chalky, 56 cents per lb.

IPECACUANHA showed a firm undertone, GUM KARAYA was firm, with local prices 45 to 55 cents per lb., according to grade with replacement costs a firming factor. In GUM ACACIA, small quantities were commanding $19\frac{1}{2}$ to 20 cents. AGAR was again lower with No. 1 Kobé at \$2.40 to \$2.45 per lb. Bourbon Vanilla Beans were easier at \$7.75 per lb. In ESSENTIAL OILS, the price trend was downward. PEPPERMINT was softer by 10 cents per lb., with natural at \$7.25 and redistilled at \$7.65. SASSA-FRAS, artificial, was down to 88 cents per lb. and SPEARMINT was down 10 cents to \$4.10.

Trade in CITRUS OIL continued disappointing, but inquiry was reported more active. Geranium and Lavender continued firm with Sandalwood, ORRIS and EUCALYPTUS scarce.

COMING EVENTS

ltems for inclusion under this heading should be sent in time to reach the Editor not later than first post on Wednesday of the week of insertion.

Sunday, June 26

Manchester Pharmaceutical Golfing Society, at Hawkstone Park, Compettion for the B.D.H. trophy.

Tuesday, June 28

British Instrument Industries Exhibition, Earls Court, London, W.14. Open until July 9.

Wednesday, June 29

THAMES VALLEY PHARMACISTS' ASSOCIATION, visit to the factory of Eli Lilly & Co., Ltd., Basingstoke. Coaches leave New Malden (fountain), 1.30 p.m.; Kingston railway station, 1.50 p.m.; Richmond railway station, 1.30 p.m. Arrive Basingstoke, 3.15 p.m.

WEST KENT BRANCH, PHARMACEUTICAL SOCIETY, Bull's Head Hotel, Chislehurst, at 8 p.m. Informal dance, Ticket 5s, from Mr. W. E. Walton, 184 High Street, London, S.E.20.

TRADE MARKS

APPLICATIONS ADVERTISED BEFORE REGISTRATION

From the "Trade Marks Journal," June 8

For measuring apparatus and instruments; and apparatus and instruments for use in scientific

MICROMEROGRAPH, 738,826, by Sharples Corporation, Delaware, U.S.A.

From the "Trade Marks Journal," June 15

For synthetic resins in liquid form, for use by spraying in the treatment of foundry moulds (1) CATALAC, 720,805, by Catalin, Ltd., Waltham Abbcy, Essex.

For pentaerythritol, being a chemical product for

use in industry (1)
PENTROL, 735,004, by Walker Extract & Chemical Co., Ltd., Bolton, Lancs.

For chemical preparations for addition to boiler systems to prevent incrustation of boilers and boiler pipes (1)
INDEX, 735,744, by Industrial Extracts, Ltd.,

West Perth, Australia,

For chemical compositions (not being paints) for preserving against external influences the surfaces of paintwork, lacquer-work, stonework, cement,

brickwork, concrete and plastic materials (1) MICROKOTE, 739,888, by Astor Boisselier & Lawrence, Ltd., London, W.C.2.

For all goods (1)

ESPESOL, 738,823, by Eastern States Chemical Corporation, Delaware, U.S.A. Device of a star, 740,088, by H. J. Enthoven & Sons, Ltd., London, E.C.4.

For chemical substances for use in the textile industry (1)

ANTISTATIN, 740,257, by Badische Anilin & Soda Fabrik, A.G., Ludwigshafen-on-Rhine. Germany.

For non-medicated toilet preparations (3) BIKEENOL, 740,399, by Goya, Ltd., London, W.1.

For antibiotic preparations (5)

Device of a star, 735,770, by Aktiebolaget Astra, Sodertalje, Sweden.

For all goods, but not including chemical pre-parations for use as fillings for teeth and as additives to fillings for teeth or any goods of the same description (5)

736,682, by C. L. Bencard, Ltd., TRI-PAL, London, S.W.I.

For pharmaceutical preparations, dietetic, infants' and invalids' foods (5)
CONUTOL, 739,911, by Joseph Fischer, Lon-

don, S.E.5.

For medicinal preparations (5)

Label design incorporating the wording "1M-PORTANT TO MOTHERS, WOODWARD'S CELEBRATED GRIPE WATER," 738,964, by W. Woodward, Ltd., London, S.W.9.

For pharmaceutical preparations and substances

FERNICO, 740,013, by Cupal, Ltd., Blackburn, Lancs,

For pharmaceutical preparations for human and veterinary use; and sanitary substances and disinfectants (5)

GARDIS, 740,189, by Imperial Chemical (Pharmaceuticals), Ltd., London, S.W.1. For hot-water bottles (2)

VELVETEX, 740,912, by Cannon Rubber Manufacturers, Ltd., London, N.17.

PRINT AND PUBLICITY

Advertising Campaigns

DDIS, LTD., Brushworks, Hertford: Wisdom tooth-brushes. Half-page in Daily Express on ADDIS. June 25, and other large spaces in "mass-circulation" newspapers.

COUNTY LABORATORIES, LTD., Honeypot Lane, Stanmore, Middlesex: Amami lotion shampoo. In national newspapers and women's magazines, beginning in August.

FEEDRITE, LTD., 308 Kingston Road, Merton Park, Surrey: Feedrite feeding bottles and accessories. National advertising. In Daily Mirror, Daily Herald, Daily Sketch, People, News of the World, Sunday Pictorial, Parents, Nursery World, etc.

Perihel, Ltd., 27 Rabbit Row, Kensington, London, W.8: Actina portable sun lamp. In Sunday Times, Observer, Manchester Guardian, Housewife, Good Housekeeping, Homes and Gardens, Harper's Bazaar, Vogue,

RILHARD HUDNUT, LTD., Power Road, London, W.4: Shampoo with egg. National publicity increasing by 60 per cent.

C. & D. WEEKLY LIST OF PRICES A Advanced: R Reduced: * Tax 25 per cent.: † Tax 75 per cent.

A	· 119 11-		ducce	-, -		a so per center,
1NNOXA (ENGLAND), LT	D. (f:	rom	July	1)		English lavender ta
	Do	οŻ.	1.8	c.P.		bath cubes
Astringent lotion†	40	0	7	6	A	toilet soap
Beauty case M796†	472	0	81	9	A	bath soap
Complexion milk†	64	0	12	0	A	bath dustin
	112	0	21	0	A	shaving cre
Cream of roses†	32	Ŏ		0	A	
Eye cosmetique (mascara)†	36	0	6	9	A	COUNTY LABORA
refill†	22	0	4		A	Amami lotion s
Foundation lotion†	40	0	7	6		sachet*
Matine day cream†	26	0		101	A	
And the day element	42	0		10%		DALMAS, LTD. (d
Mousse day cream†	26	0		10;		Luxigro fertiliser
nrouse day ereant;	42	0		10%		
Skin balm†	26	ŏ		101		EDWARD HACK,
Skiii Gainti	42	0		10%		Hax plastic " lemo
Skin food†	32	ŏ		0		-
Skiii 100u	50	0		41		KUMAR (LONDOR
Skin tonic†	40	ŏ	ź	6	4	Respedrine tablets
Tissue cream†	32	ö		ŏ		
rissue cicain;	56			6		
White mask (tubc)†	40	0	7		A	PARKE, DAVIS &
white mask (tube)	40	U	,	U	А	Mercloran Emplets
MEGGESON & CO., LTD.						
Meggeson's glycerin and						Mercloran tablets
blackcurrant pastilles and						above as stocks be
glycerin, lemon and						
honcy pastilles	12	0	1	6	A	PHARMACEUTICA
HOREY PASTIRES	14	0	1	9	71	

blackcurrant pastilles glycerin, lemon honcy pastilles	and and	12	0	1	6	
P.A.T.A. PRO	TEC	TE	D L	IST		

(Prices notified this week by the Proprietary Articles Trade Association.)

ALLEN & HANBURYS, LTD. (from June 20) Allenburys rusks 8 oz. 18 4 1 11 Allenburys rusks

CIBA LABORATORIES, LTD. Doriden tablets* 100 14 7 68 10

NEW PRODUCTS AND PACKS J. & E. ATKINSON, LTD. English lavender†

an no per centry (— run 15 per centr		
English lavender talcum†	3	6
bath cubes† 6	4	6
toilet soap*	2	6
bath soap*	4	0
bath dusting powder†	10	6
shaving cream*	3	6
COUNTY LABORATORIES, LTD. Amami lotion shampoo sachet*		6
DALMAS, LTD. (distributors)		
Luxigro fertiliser	1	6
EDWARD HACK, LTD.		
Hax plastic "lemon" 9 6	1	0
KUMAR (LONDON), LTD.		

PARKE, DA	V1S &	co.,	LTD.			
Mercloran E	mplets		25		6	6
	-	2:	50		50	0
Mercloran	tablete	are	being	replaced	hv	- 1

ercloran tablets are being replaced by the e as stocks become exhausted.

500

46 3

above as stocks become exhauster			
PHARMACEUTICAL SPECIALIT BAKER), LTD. Largactil suppositories	TES (M	Α¥	4
5 x 100 mgm.	8	9	
ROCHE PRODUCTS, LTD. Gantrisin eye ointment			
5 gm.	2	6	
TOKALON, LTD.			
Mirabelle lipstick†	1	8	
	4	8	
Mirabelle powder†	1	8	
	3	0	
YARDLEY & CO., LTD.			
Feather finish†	8	9	
refill†	4	11	



Antihistamines for old and young

When the contents of Pandora's Box were released, Hope alone remained. To the patient of allergic diathesis, threatened by a veritable Pandora's Box of ills, the antihistamines 'Histantin' and 'Actidil' represent far more than hope.

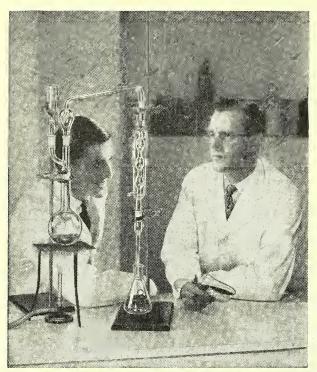
For adults 'Histantin' is the product of choice, giving prolonged relief with a minimum of side-effects.

The new quick-acting antihistamine, 'Actidil', exerts its effect for about 12 hours and is also notable for low incidence of side-effects. 'Actidil' Elixir has been specially formulated and clinically tried for the treatment of allergic conditions in children.

- **'HISTANTIN',** 50 mgm., is issued in bottles of 25, 100 and 500 at list prices (subject to usual discount) of 6/6, 24/6, 110/-.
- **'ACTIDIL'** compressed products of 2·5 mgm. in bottles of 25 and 500 at list prices (subject) of 6/6 and 110/-.
- **ACTIDIL**, ELIXIR in bottles of 20 fluid ounces, for dispensing, at a list price (subject) of 15/-.



BURROUGHS WELLCOME & CO. (The Wellcome Foundation Ltd.) LONDON



'That's a neat bit of Bench Assembly!'...

- "... YES, I agree with you, and the reason it is so neat is because of the interchangeable ground glass joints. It's 'PYREX' of course, and the specially strengthened 'Grip-Seal' joints not only save time in assembling, but also ensure accurate fitting and less likelihood of breakage."
- " Grip-Seal," what a perfect description!"
- 'It is indeed, and it's even more than that! Every joint fits perfectly and makes a perfect seal for both gas and moisture. We never have any leakage troubles, and that's a great help in our distillation experiments.'
- The advantages of 'Pyrex' 'Grip-Seal' Joints are described fully in the new' Pyrex' catalogue, which contains also many examples of complete Assemblies made up with 'Grip-Seal' Joints.
- If you would like a copy of this 124-page reference book, we will gladly send it. Any special Assemblies not listed can be fabricated to your own ideas or needs by technicians well skilled in development work of this nature.

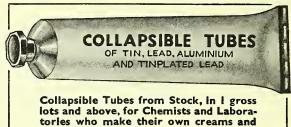


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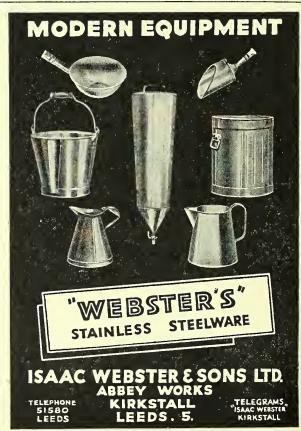


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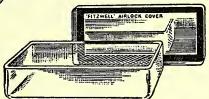
A. SEARLE & C.

SURGICAL INSTRUMENT
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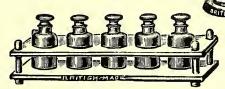


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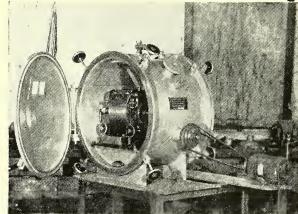
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The smaller types of equipment illustrated are a random selection from the wide range specially designed by the Mitchell organisation for the pharmaceutical and process industries.

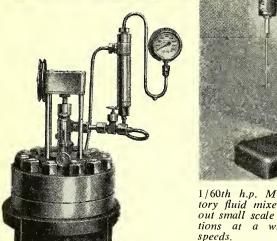
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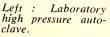




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Laboratory Roller Mill or Mixer for rapid thorough grinding and mixing of materials in glass jars; adjustable rubber covered rollers.

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This ALBRO Powder Filling Machine handles bottles, tins, cartons or drums of many sizes with equal ease. Even cardboard cartons which are not absolutely air-tight can be filled satisfactorily.

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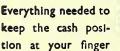
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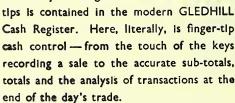
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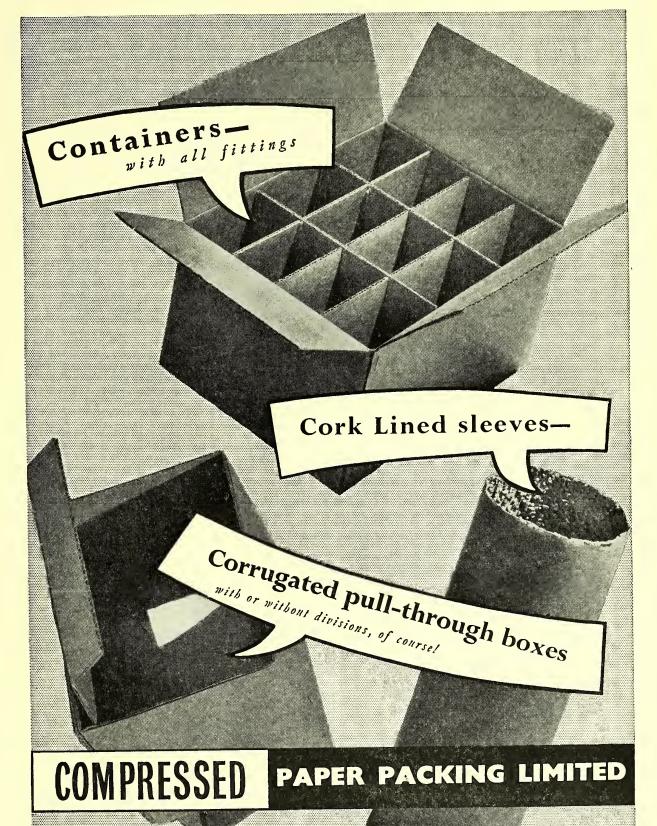




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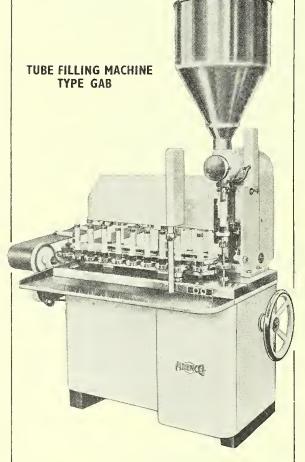
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MACHINERY

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AUTOMATIC TUBE FILLING

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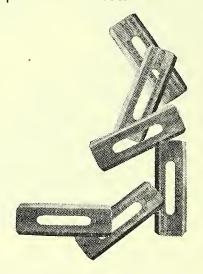
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Made to fit the famous Durham Duplex Safety Razor, these original Hollow Ground blades will give easier shaves and more shaves than any other safety blade obtainable.

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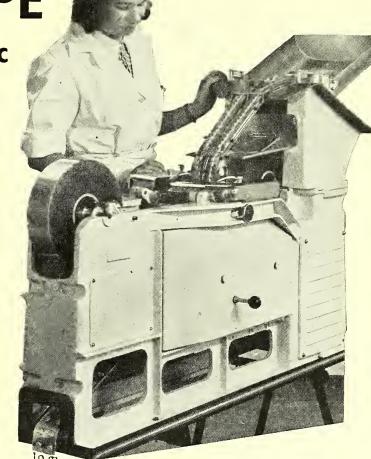
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"CLINITAPE"

Fully Automatic
STRIP
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for tablets, pills & capsules

VERSATILE AND
EFFICIENT WITH
SIMPLICITY AND
LOW COST
OF OPERATION



Production model supplied with interchangeable roller units to pack tablets from $\frac{5}{8}$ " to $\frac{5}{8}$ " diam. in three sizes of pocket.

For packaging 240 tablets per minute in individual compartments in practically any heat-sealing film or foil. The product is gently handled by the machine, thus avoiding marring and breaking.

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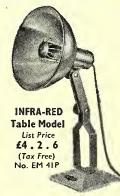


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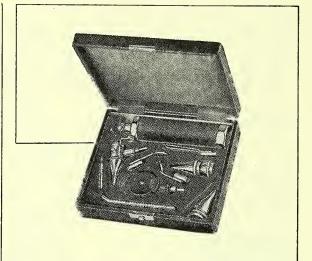
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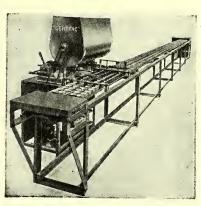
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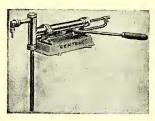
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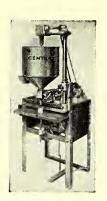
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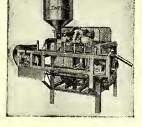
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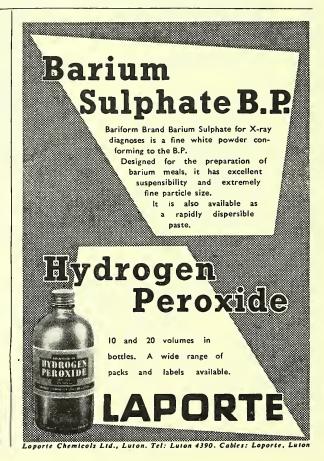
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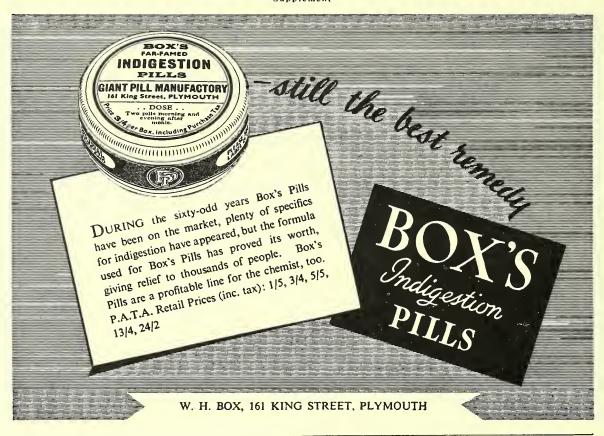
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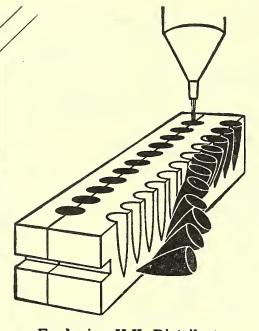
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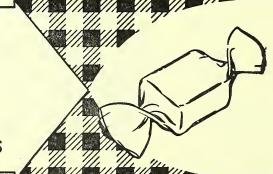
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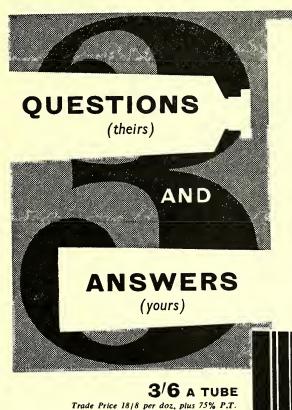
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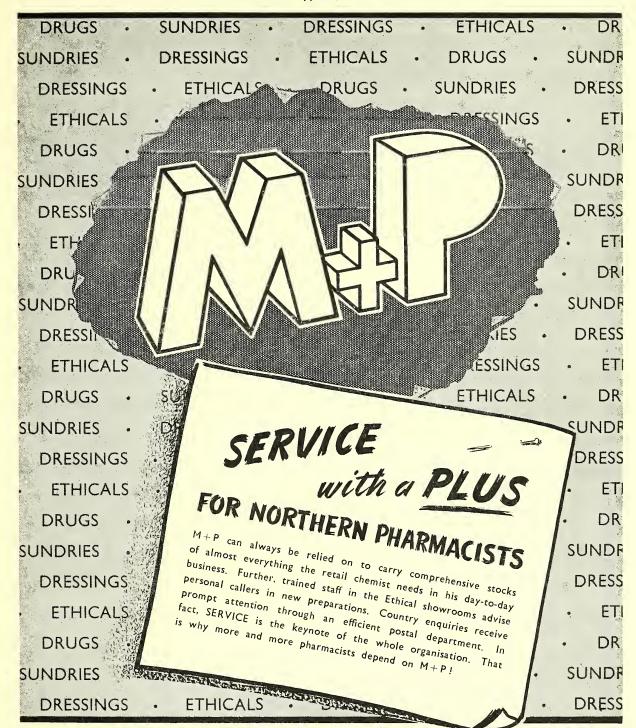
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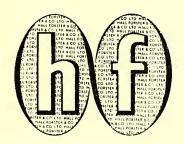
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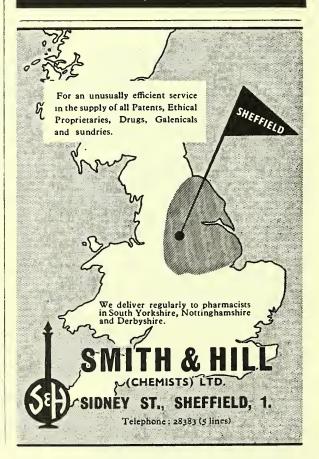
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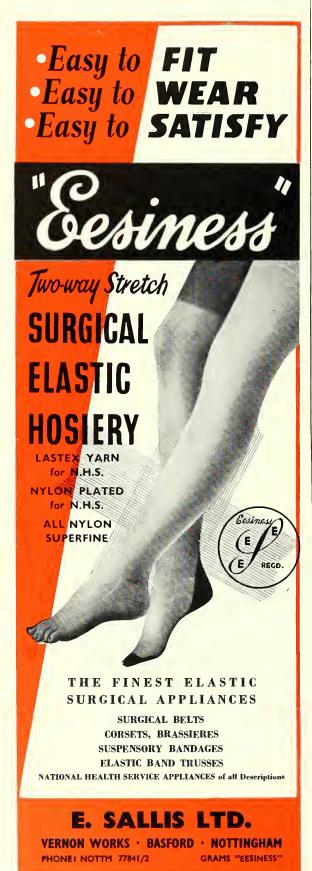
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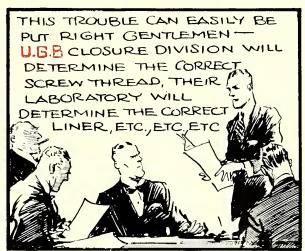


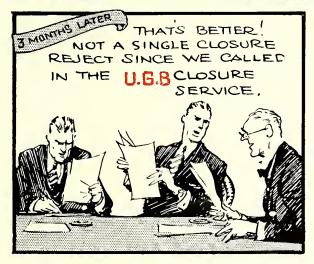
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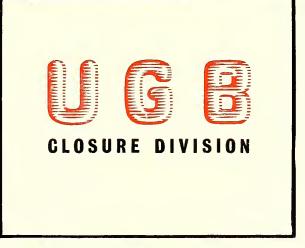












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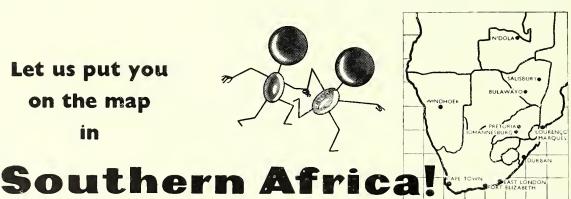
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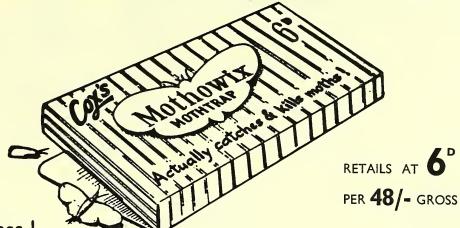
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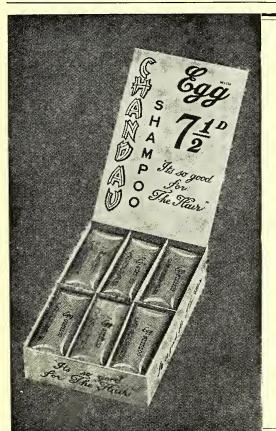
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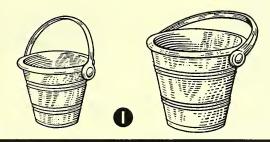
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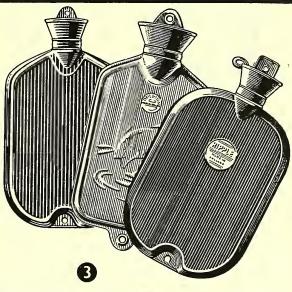
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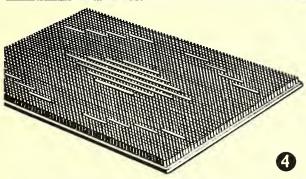
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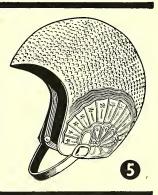


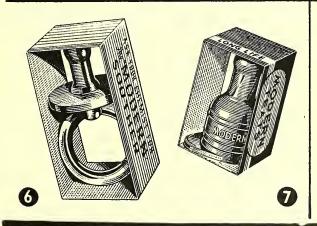






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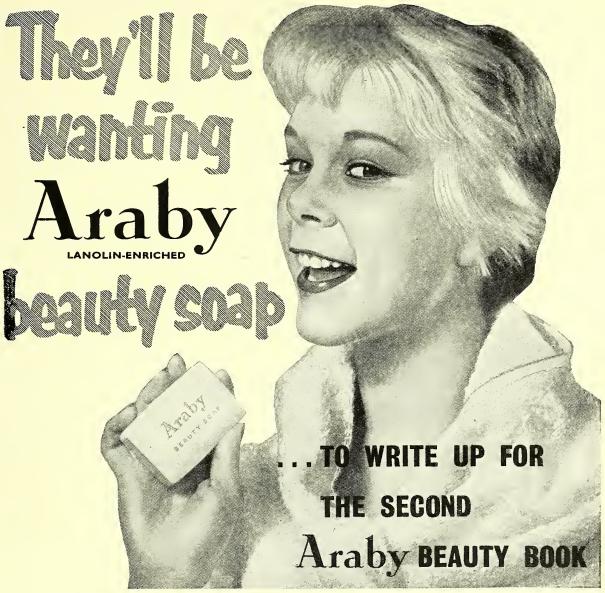
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Staythorpe Power Station, nr, Newark.
Vacancy No, 100/55/C&D.
Candidates must have had a sound technical training and some previous laboratory experience and should hold the Ordinary National Certificate in Chemistry (or equivalent qualifications) fications).

Reations).

Salary will be within Class J, Grade 16 (£515 x £15—£560 per annum) of the National Joint Board Agreement,
Closing date for receipt of applications, July 11, 1955.

This appointment will be pensionable within the terms and provisions of the Central Electricity Authority and Area Boards Superannuation Scheme.

annuation Scheme,
Applications should be submitted on the official form A.E.6/ACT which may be obtained from the Divisional Establishments Officer, Central Electricity Authority, P.O. Box 25, Barker Gate, Nottingham, and should be returned to the undersigned by the date stated. Please quote Vacancy Number.

L. F. JEFFREY,
Divisional Controller.

June 17, 1955. C 8742

C 8742

June 17, 1955.

CRUMPSALL HOSPITAL,

MANCHESTER, 8
Locum Pharmacist
required from June 27 to September 30, 1955.
Salary 14 guineas per week.
Applications to the Hospital Administrator as soon as possible.

C 8726

GERMAN HOSPITAL, DALSTON, E.8

(157 Beds—General)
Assistant in Dispensing
(Apothecaries' Hall Certificate), Whitley Salary
and conditions, Application form from Group
Secretary, Hackney Hospital, London, E.9.
C 8714

KIDDERMINSTER

GENERAL HOSPITAL
Locum Chief Pharmacist
required at the above hospital for a fortnight
during months of July and August. Applications, with the names of two referees, to the
Hospital Secretary. C 8745

ST. BARTHOLOMEW'S HOSPITAL,

LONDON, E.C.1

Pharmacists

Two vacancies exist, Salary in accordance with the Whitley Council Scale, Write enclosing two copies of testimonials to the Pharmacist.

C 8728

MID-KENT HOSPITAL
MANAGEMENT COMMITTEE
Assistant in Dispensing
required for holiday relief at West Kent
General Hospital, Maidstone. Period, August
17-23, 1955; Kent County Ophthalmic &
Aural Hospital, Maidstone,
6-20. 1955.

6-20, 1955.
Salary based on Whitley Council recommenda-

Applications to the Administrative Officer at the hospital concerned. C 223

ROYAL BERKSHIRE HOSPITAL, READING

(Category V)

Senior Pharmacist

for Group Pharmaceutical Department, Opportunities for experience in all branches, Full supporting staff, Present salary £525-£625 p.a. (subject to increase on publication of latest Whitley Council award) plus extra for overtime sessions, Apply stating age, qualifications, experience and names of two referees to Group Pharmacist,

C 216

SHREWSBURY HOSPITAL GROUP, ROYAL SALOP INFIRMARY, SHREWSBURY

Assistant in Dispensing
Apothecaries' Hall Certificate, Sessional duties at other group hospitals.
Whitley salary scales and conditions.
Applications to the undersigned.

J. P. MALLETT,
Group Secretary.
C 8746

Pharmacist.

C 8746

ST. BARTHOLOMEW'S HOSPITAL, LONDON, E.C.1

Locum Pharmacists

Vacancies exist until September. Wage at rate of 14 guineas per week, Applications in writing giving details to Chief Pharmacist. C 8727

STOCKPORT AND BUXTON HOSPITAL MANAGEMENT COMMITTEE,

STOCKPORT INFIRMARY
Deputy Chief Pharmacist
Applications are invited from suitably qualified candidates for the above post which will appeal especially to pharmacists interested in the pre-

paration of sterile products,
Salary scale £575 x £25 to £675 plus £25 per
annum if holding a higher qualification allow-

Applications, with full particulars, together with copies of two testimonials, or names of referees, to the Group Secretary, 59B Shaw Heath, Stockport,

THE LONDON HOSPITAL, WHITECHAPEL, E.1

Pharmacist has vacancy for registered pharmacist, Salary £500 rising to £725 plus London Weighting according to previous experience and service. Dining room facilities available, Write Secre-

WANSTEAD HOSPITAL, HERMON HILL, E.11

Locum Pharmacist required for any three consecutive weeks up to September 30, 16 guineas per week, Applications and copy testimonials to Secretary, Forest Group H.M.C., Langthorne Road, E.11.

BERDOE & FISH

Chemists' Transfer Agents and Valuers 41 ARGYLE SQUARE, KING'S CROSS, W.C.1 (opposite St. Pancras and King's Cross Stations)

Wanted immediately good class businesses in London, Home Counties and South Coast. Private clients waiting with cash up to £10,000.

All Valuations and Stocktakings, carried out under personal supervision of principals.

Established 1870

Phone: TERminus 3574

DUNCAN, FLOCKHART & CO., LTD. MEDICAL REPRESENTATION

Applications are invited for several posts in the Midlands and North of England.

Applicants should be men aged 30-40 with pharmaceutical qualifications and preferably with some years' experience of representational work in the medical, dental or veterinary fields.

Salary, which will be substantial, will be commensurate with experience.

with experience. A car and legitimate expenses will be provided.

superannuation and three weeks'

vacation in operation.

The Company is enlarging its representational force following reorganisation as an ethical house, and prosfollowing reorganisation as an etilical nead, peets are excellent for first-class men.
Apply in writing to the Manager, Duncan, Flockhart & Co., Ltd., 104 Holyrood Road, Edinburgh, 8.

C 8734

Appointments—Continued THE MILLER GENERAL HOSPITAL,

HOSPITAL,
GREENWICH, S.E.10
Senior Pharmacist

Applications are invited for the post of Senior Pharmacist in a well-equipped pharmaceutical department at the above hospital, Inspection of the department may be made by arrangement with Chief Pharmacist (Tel.: Tid. 1136). Pharmaceutical Whitley Council salary (£575 x £30 (5) x £25 (2)—£775 p.a. plus L.W.) and conditions, Applications to Secretary, G. & D./H.M.C., St. Alfege's Hospital, S.E.10, as soon as possible.

SUPERINTENDING PHARMACEUTICAL

SUPERINTENDING PHARMACEUTICAL CHEMIST (Male or Female)

required by
FEDERATION OF MALAYA
MEDICAL DEPARTMENT
on contract for one tour of three years in the
first instance, Salary scale (including expatriation pay and present temporary allowance)
equivalent to £1,092 rising to £2,100 for single
men and £1,092 rising to £2,207 for women.
Additional temporary allowances totalling £162£399 a year (married men) and £218-£630
(family men). Grautity at rate of £200-£280 a
year, Free passages, Liberal leave on full salary, N.H.S, superannulation rights can be preserved in approved cases. Candidates must be
F.P.S. and/or P.Ch, of Great Britain and
possess a recognised degree in Pharmacy, They
must have had not less than two years' experience in teaching, hospital, or manufacturing
pharmacy after registration, Write to the Crown
Agents, 4 Millbank, London, S.W.1.
Sate
age, name in block letters, full qualifications
and experience and quote M3A/35345/C.D.
C 8750

WEST DORSET GROUP

WEST DORSET GROUP HOSPITAL

MANAGEMENT COMMITTEE
Senior Pharmacist (male or female)
required. Salary and conditions of service in accordance with Whitley Council recommendations, Scale: £575 x £30—£725 x £25—£750
p.a. The successful candidate will be required to accise in the pharmacountial departments at to assist in the pharmaceutical departments at both Weymouth & District Hospital, Wey-mouth, and Dorset County Hospital, Dorchester.

Dorchester.
Applications giving details of age, qualifica-tions and experience, together with names of two referees, to Group Secretary, West Dorset Group Hospital Management Committee, Damers Road, Dorchester, immediately, C 8623

WEST LONDON HOSPITAL, HAMMERSMITH ROAD, W.6 Senior Pharmacist

Pharmacist

Locum Senior Pharmacist and Pharmacist Applications invited for the following posts at

Applications invited for the following posts at the above general teaching hospital: SENIOR PHARMACIST to take charge of production, sterile preparations and stores. Salary scale £575-£775 plus London Weighting, Additional £25 if holding higher qualificactions.

fication.

PHARMACIST. Salary scale £500-£725 plus

London Weighting, Additional £25 if holding
higher qualification, Service in retail pharmacy, etc., taken into account in deciding
commencing salary,
Age, qualifications, experience, names two referees to Secretary,
LOCUM SENIOR PHARMACIST and PHARMACIST required immediately, Salary 16 or
15 guineas per week, Applications to Secretary.

C 8741

SITUATIONS OPEN

8/6 for 36 words (min.) then 3d. per word

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

RETAIL (HOME)

ASSISTANT PHARMACIST, lady or gentleman, required mainly for dispensing at South London pharmacy. Ten minutes from Charing Cross and London Bridge Stations, Hours 9 a.m. to 6 p.m. Adequate supporting staff. Pleasant working conditions. Long or short engagement, Commencing salary £832 p.a. Apply Box C 212.

BIRMINGHAM (Centre), Senior lady, experienced knowledge buying preferred, general

Pleasant working conditions, Long or short engagement, Commencing salary £832 p.a. Apply Box C 212, BIRMINGHAM (Centre). Senior lady, experienced, knowledge buying preferred, general office routine, typing, to take an intelligent interest in the business, Full-time shop hours. Wednesday half-day, congenial post, good salary, holidays arranged. Galloways, Chemists, Victoria Square. C 2640 CHEMISTS' SHOP ASSISTANTS required, fully experienced, drugs and toilet counter. High salary, excellent conditions, Apply Kendale Dispensing Chemists, 51 Exmouth Mkt., E.C.1, Phone Terminus 9494, C 8738 DONCASTER CO-OPERATIVE CHEMISTS, LTD., require the services of Pharmacists (male or female) as branch managers, Living accommodation with one post, Minimum rate £780 per annum, 44-hour week, Applications and usual particulars to Superintendent Chemist, St. Sepulchre Gate, Doncaster. C 199 EXETER, DEVON. Pharmacist required for old-established retail business, lady or gentleman, Knowledge of veterinary medicines an advantage. Apply with full particulars of previous experience, etc., to Stone & Son, Ltd., 166 Fore Street.

Up-to-date dispensary. Progressive salary with monthly bonus and rota duty payments, Modern flat available near branch, Permanency. Apply with full details stating when available for interview to Box C 2632.

LADY ASSISTANT REQUIRED for dispensing and counter in old-established business, London, S.W.12. Holidays could be arranged. Write fully stating salary to Box C 2650.

LADY DISPENSER REQUIRED for good-class pharmacy in market town. Good hours, and staff rest-room, Help given with accommodation and holiday this year, This is an interesting position with plenty of scope for initiative, and ample staff kept, Please give all details of age, salary required and previous experience to Wilfrid E, Dale, Ltd., 27 Market Place, Andover, Hants.

C 2649 LONDON, PADDINGTON, W.9. Superintendent pharmacisi, No rota duties, Hours 9 a.m. to 6 p.m. Rent free, self-contained flat (3 technomy). Please state salary required in f

PART-TIME PHARMACISTS, 10/- per hour, required N.1, N.16, E.C.1, and Ilford. Some evenings 6-8 and/or Sunday mornings. Dispensing duties. Apply Kendale Dispensing Chemists, 51 Exmouth Mkt., E.C.1. Phone Terminus 9494. Terminus 9494, C 8737
PORTSMOUTH, Branch Manager/Pharmacist required for new pharmacy on new housing estate, Applications in writing stating age, experience and salary required to the Personnel Manager, Co-operative, 110 Fratton Road, Portsmouth C 2641 Partial Code Peractive, 110 Prattol Code, Portsmouth, C 2641 ROYAL ARSENAL CO-OPERATIVE CHEMISTS, LIMITED, invite inquiries from Pharmacists of either sex, who are desirous of obtaining managerial position in south-east London, which is permanent and progressive, offering excellent salary and commission, with superannuation benefits, Housing accommodation is available and appointment for interview to discuss terms and inspect pharmacy and accommodation will be made upon application to the Staff Manager, 71 Powis Street, Woolwich, S.E.18, C 8754
TEDDINGTON. Excellent opportunity for Pharmacist to manage family type business in Portsmouth, wich, S.E.18,

C 8754

TEDDINGTON, Excellent opportunity for Pharmacist to manage family type business in pleasant riverside district, Permanency with superannuation benefits, Good salary and commission, Nicely fitted shop with adequate supporting staff. Apply with full details stating when available for interview to Box C 2633.

TWICKENHAM, Excellent opportunity for pharmacist to manage family type business in pleasant riverside district with good living accommodation over, Permanency with superannuation benefits, Good salary and commission, Nicely fitted shop with adequate supporting staff, Apply with full details stating when available for interview to Box C 2631.

WHETSTONE, Pharmacis required to manage spacious well-fitted branch with substantial counter trade in pleasant North London suburb, Good opportunity for ambitious man to earn top salary together with monthly bonus and rota duty payments, Permanency with superannuation benefits, etc, Apply with full details stating when available for interview to Box C 2634.

LOCUMS WANTED

LOCUM PHARMACISTS REQUIRED London and suburban areas, long or short periods, Permanency at conclusion of tour if desired, Salary and expenses basis, Apply to H. Warburton, M.P.S., Chief Pharmacist, London Co-operative Chemists, Ltd., Grange Road, Leyton, E.10.

RETAIL (OVERSEAS)

SOUTHERN RHODESIA. Qualified lady and gentleman required for retail pharmacy in very pleasant healthy town, Passage paid, Three-year contract. Medical aid scheme. Excellent prospects, Apply in first place to Section 7B, Mackinlay & Co. (London), Limited, 197 Great Portland Street, London, W.1. C 8751

WHOLESALE

ALLIED LABORATORIES: Invite applications for the position of medical representative
to take over their established connection in
South Yorkshire. Previous experience in this
work is not essential but candidates should
possess a good technical background and live
on and know the territory well. The position
is a progressive and pensionable one carrying
salary, commission and expenses. Applications,
in strict confidence, stating age and giving
brief review of career to date should be addressed to Sales Manager, Allied Laboratories,
Ltd., 140 Park Lane, London, W.1. C 8659

UNISEC' from the Single Unit to the Complete Pharmacy
WHEST TOUR COPY OF THE STANDARD
PHARMACY FITTING MYERS of OLD ST. 133 5 & 141 7 OLD STREET, LONDON, E.C.I

SHARP & DOHME, LTD.

Applications are invited from men between the ages of 24 and 35 positions as Medical Representatives in the interesting

ror interesting positions as Medical Representatives in the following areas:

(a) East Anglia (b) North and East Ridings Yorkshire Candidates should be of outstanding personality, of good education and have the ability to conduct interviews with members of the Medical and Pharmaceutical professions. Previous experience in this field an advantage, but not essential.

A company car will be provided. Apply Sales Manager, Sharp & Dohme, Ltd., Hoddesdon, Herts.

C 8757

Situations Open—Continued

Situations Open—Continued

APPLICATIONS ARE INVITED by an oldestablished drug house of repute for the position of representative in the South Wales area.

We regard this as an important post and the
gentleman engaged will be energetic, aged between 35-45 years, with a pharmaceutical
background and a good connection in the retail pharmaceutical field, Residence in S. Wales
or the Bristol area an advantage, Remuneration
is above average and prospects are in direct
ratio to the effort made, A substantial connection already exists on the territory, Apply
with full details of past experience, age, etc.,
and photograph, if possible, to the Sales Manager. Box C 8752.

ager. Box C 8752.

AYRTON, SAUNDERS & CO., LTD., require AYRTON, SAUNDERS & CO., LTD., require pharmaceutical chemist for analytical and research work, preferably with some experience. Applicant will be encouraged to work for A.R.I.C., if not already so qualified. Five-day week. Pension scheme, Full details of age, qualifications and experience to Technical Director, 34 Hanover Street, Liverpool, 1.

C 8697

BAYER PRODUCTS, LTD., require representative to call on doctors, veterinary surgeons and chemists in the Republic of Ireland, working from Cork, A pharmaceutical qualification or pharmaceutical or medical background is necessary and previous experience as a representative is not essential, Good salary and expenses; excellent prospects for the right man; car provided; superannuation scheme, Applications, which will be treated as confidential, should be made in writing to The Manager, Bayer Products, Ltd., Molesworth House, S. Frederick Street, Dublin.

C 8697

BOOTS PURE DRUG CO., LTD., have a

BOOTS PURE DRUG CO., LTD., have a vaeancy in the Antibiotics and Fermentation Division of the Research Department for a biochemist, preferably with post-graduate research experience. The vacant post is in the section concerned with fundamental studies of with interest of the research concerned. antibiotic production and calls for a sound knowledge of biochemistry, preferably with some experience in Warburg and similar techsome experience in warourg and similar techniques. Salary according to age, qualifications and experience. Application to Personnel Manager, Station Street, Nottingham, C 8721 BOOTS PURE DRUG CO., LTD., invite applications from pharmacists for positions in their pharmaceutical factories at Beeston, near Nottingham. The vacancies are in the production departments, development department, and drug warehouses and offer interesting work and good prospects to suitable applicants. The positions are permanent and pensionable after six months' service. Applications should be addressed to Personnel Manager, Station Street, Nottingham.

CHEMIST REQUIRED by Midland company to control manufacture of ice cream, bakers' synthetic cream and fat emulsions, Capable of experimenting in other alliced food products, Permanent position with prospects, Please give

details of experience, age and salary required to Box C 2646.

FACTORY ASSISTANT or process worker required immediately by London manufacturing chemists, Applications invited from men from 25-50 years, stating experience and salary required. Five-day week, Box C 218,

MANUFACTURING **PHARMACEUTICAL**

PHARMACEUTICAL CHEMISTS
in Yorkshire offer positions in both Research and Manufacturing Departments, owing to expansion, to pharmaceutically trained and qualified men aged about 30. Work interesting and varied. Desire and capacity for responsibility and control additionally advantageous. Commencing salary according to age, qualification and experience, Positions are permanent and progressive. Pension schemes,
One of these two positions carries superior and exceptional opportunities.
Full particulars including age and copy references to Box C 2603.

LEADING MANUFACTURERS of ethical preparations require a first-class medical representative in South Wales, Experience in the field of medical propaganda an advantage. Car owner essential. Adequate salary, car allowance and all other expenses, Pension scheme, Please give full details in writing to Box C 8755. MEDICAL REPRESENTATIVE: Applications are invited for the position of medical representative with a well-known manufacturing house to take over their established connection in the Glasgow area, Previous experience is not essential as every help and encouragement is given. The position is a progressive one. Remuneration is by way of salary, commission and expenses. An attractive pension scheme is also operative, Applications, stating age and a brief review of career to date, should be addressed to Box C 8658.

OPPORTUNITY AVAILABLE for a number of young unqualified assistants to work in the analytical laboratories of well-known S.E. London pharmaceutical and fine chemical manufacturers. The work covers a wide range of materials and techniques including modern instruments. Part-time day release given to students following an approved course of study. Congenial working conditions, Five-day week, good canteen facilities and appropriate salary depending on ability and experience, Apply, with relevant details to Chief Chemist, Menley & James, Ltd., Coldharbour Lane, London, S.E.5.

PROGRESSIVE MANUFACTURING cosmetic chemists require travellers for their London.

PROGRESSIVE MANUFACTURING cosmetic PROGRESSIVE MANUFACTURING cosmetic chemists require travellers for their London, Midland and Northern territories, Must have a good connection amongst chemists, ladies' hairdressers and stores, Remuneration by salary, commission and expenses, Apply with fullest details to Box C 2639.

PROCESS WORKER, either sex, required for sterile department to assist pharmacist in

PROCESS WORKER, either sex, required in sterile department to assist pharmacist in manufacture, filling, sterilisation and checking. Apply Biorex Laboratories, Ltd., 47/51 Exmouth Mkt., E.C.1. Phone Terminus 5216.

mouth Mkt., E.C.I. Phone Terminus \$216. C8736.

QUALIFIED CHEMISTS/PHARMACISTS required in the analytical laboratories of well-known S.E. London pharmaceutical and fine chemical manufacturers. The work in the well-equipped modern laboratories covers a wide range of materials and provides an opportunity to gain experience in the application of the newer instruments to analytical techniques especially in the fields of spectrophotometry, chromatography, etc. Congenial working conditions during a five-day week, and good canteen facilities coupled with an attractive pension scheme make this proposition of interest to anyone seeking a change of environment, Salary scale not less than B.A.C. recommendations. Apply, with details of qualifications and experience to Chief Chemist, Menley & James, Ltd., Coldharbour Lane, London, S.E.5.

REPRESENTATIVES/AGENTS calling on chemists in most parts of the country required for developing sales of well-known and exceptionally attractive proprietaries. Liberal commission and exclusive territories, National advertising for leading products being planned. A sound and remunerative proposition for capable salesmen not afraid of hard work. Please send complete information, including territory, in confidence. Box C 2648, REPRESENTATIVES calling on chemists in all REPRESENTATIVES/AGENTS calling

connected: 80x C 2046, REPRESENTATIVES calling on chemists in all parts of the country required, for introducing a nationally advertised line, Good commission, Write Box C 8694.

Write Box C 8694.

REPRESENTATIVE REQUIRED to sell well-known range of fancy candles. Applicants must have first-class live accounts, experience and own car. Progressive position with good salary, commission, car allowance and expenses. Please write Box C 2630.

write Box C 2630.

REQUIRED by London Manufacturing Chemists. Medical ages of 25 and 40, with good pharmaceutical background and knowledge of medical nomenclature, to visit doctors, hospitals, dentists and chemists in Yorkshire, Durham and Northumberland areas for the purpose of propaganda for ethical products, Applicants should state age, experience and salary required to Box C 215.

REPRESENTATIVES REQUIRED to sell wellknown Swiss Electric Shaver on combasis. Exclusive territories available.

RIKER

National Research

Owing to territorial reorganisation a vacancy occurs for a representative in the west Midlands. This post provides the opportunity of joining a rapidly expanding Pharmaceutical Company marketing the products of two American Research organisations, Applicants should preferably be qualified pharmacists and no previous experience in medical representation is necessary as full training will be given. A new car will be provided and there is a Company pensions scheme in operation. Apply in writing to the Sales Department, Riker Laboratories, Ltd., Morley Street, Loughborough, marking the envelope "Representative."

SALES MANAGER required by well-known pharmaceutical house, S.W. London, manufacturers of proprietary lines, Applicants must have had good record in similar capacity, per-

have had good record in similar capacity, personal contact with wholesale trade, experience in launching new products and be able to control medical detailing force. Full particulars including salary expected in strict confidence to Box C 8748.

SALES REPRESENTATIVE required for Glasgow and West Scotland, Pharmaceutical qualification essential, Age not exceeding 40, Salary and travelling expenses, Company pension and profit-sharing schemes, Write fully: Ref. HAC/CMH, The British Drug Houses, Ltd., Graham Street, London, N.1. C 220

SALES REPRESENTATIVE required for Nottingham and the East Midlands, Pharmaceutical and the East Midlands, Pharmaceutical Pharmaceutical Control of the Control Graham Street, London, N.1. C220 SALES REPRESENTATIVE required for Nottingham and the East Midlands, Pharmaceutical qualification essential. Age not exceeding
40. Salary and travelling expenses. Company
pension and profit-sharing schemes, Write fully:
Ref. HAC/CMH, The British Drug Houses,
Ltd., Graham Street, London, N.1. C217
TABLET MAKERS and granulators required
for clean ethical work in modern plant, 40-hour
week, Canteen and pension scheme in operation.
Apply: "Bayer Products," 15 Central Avenue,
West Molescy, Surrey, Phone: Mol, 3262.
THE BAYER BIOLOGICAL INSTITUTE,
Exning, nr. Newmarket, requires a University
trained bacteriologist to carry out laboratory
work in connection with the production of
veterinary sera and vaccines. No previous
knowledge of veterinary work is necessary but
applicants must have had previous practical
laboratory experience.
Further details supplied on application.

C 8671
VACANCIES OCCUR in the formulation and
development department of the pharmaceutical

applicants must nave nau previous practical laboratory experience. Further details supplied on application, C 8671 VACANCIES OCCUR in the formulation and development department of the pharmaceutical research and development unit for assistants with suitable pharmaceutical qualifications. A superannuation scheme, and five-day week are in operation, Write giving details of age, qualifications and experience to the Pharmaceutical Development Director, Evans Medical Supplies, Ltd., Speke, Liverpool, 19. C 8662 WELL-KNOWN COSMETIC MANUFACTURER requires representative for Midland territory, Applicants must be car owners and existing connections with chemists and stores will be an advantage. Remureration by salary, commission, car allowance and experience to Box C 8753. WOMAN PHARMACIST required for a permanent post in the dispensary. Five-day week. manent post in the dispensary. Five-day week. Pension and profit-sharing schemes, Apply in writing stating age, experience and salary required to the Staff Manager, The British Drug Houses, Ltd., Graham Street, City Road, N.I.

WORKS MANAGER. An opportunity occurs for a reliable man with sound experience in pharmaceutical production. Used to control of manufacturing and packing staff, S.W. London. Full particulars to Box C 8756.

WORKS MANAGER (Pharmacist) required by well-known Yorkshire Wholesale and Manufacturing Chemist, Duties include occasional special outside contacts. Apply Box C 8733.

Photographic **Binoculars**



G.I. Brand Prism Binoculars are finest obtainable. 8x-from £8.3.6 retail. Guaranteed and passed by Institut D'Optique de Paris for optical quality and mechanical precision. Suitable for landscape, nature and long-focus

Sole distributors:

Gordon Ivey, Smith & Co. MARDON HOUSE, TEIGNMOUTH, DEVON

FST. 1883 BIS. 1941 The Complete Pharmacy Fitters Shorfronts and Interiors 3 RAVEY ST., BISHOPSGATE, LONDON. E.C.2.



Situations Open—Continued

YOUNG LADY required as assistant to buyer and for stock records, Knowledge of typing and figures essential. Write giving full details age, experience, etc. Box C 8744.

YOUNG MALE CHEMIST REQUIRED for cosmetic laboratories. Age under 25 years, preferably not yet qualified, but within one year of final examinations, Salary not less than £500 per annum. Please send full details to Chief Chemist, Max Factor & Co., West Howe, Bournemouth.

WHOLESALE (OVERSEAS)

PHARMACISTS REQUIRED by English company for service in British West Africa. Progressive salary. Free furnished accommodation. Free medical services. Contributory pension fund with generous pension at age 55. Tours of about eighteen months with leave on full pay, Initial kit allowance. First-class passages by air or steamer provided, Low income tax rates, Reply giving full particulars to Box C 2622. C 2622.

SITUATIONS WANTED

3/- for 18 words (min.) then 2d, per word. Box 1/-

WHOLESALE

EXCELLENT REFERENCES, Supervisor, 34 years' see vice with several well-known firms, experienced in handling essential oils and manufacture of all types of perfumes, toilet and cosmetic preparations, desires change and seeks suitable position London area, Box C 2651. EXPORT EXECUTIVE. Young man, 26 years, wide experience export pharmaceutical and fine chemicals as well as allied groups seeks position offering scope personal initiative. Travelled; fluent Portuguese, Spanish and German, workable French; good appearance and wide interests, Box C 2643. REPRESENTATIVE (forties) seeks post. Good connections London chemists and doctors, Also many years' analytical and manufacturing experience fine chemicals, essential oils, galenicals and disinfectants, Box C 2642. WELL-ESTABLISHED South Wales representative seeks position with reputable company. Sound connection chemists, stores, Box C 2647.

AGENCIES

17/6 for 36 words (min.) then 4d. per word. Box 2/-

AGENT REQUIRED by progressive perfumery and cosmetic house for South Wales, Products carry substantial national advertising and sell through wholesale and retail outlets, Good connection already exists and all accounts will be handed over. Write Box 6362, Frost-Smith Advg., 64 Finsbury Pavement, E.C.2. C 8692

BUSINESS OPPORTUNITIES 17/6 for 36 words (min.) then 4d. per word. Box 2/-

STRIP PACKED ASPIRIN TABLETS, B.P., 5 gr. Inquiries solicited. The Dales Tablet Makers, Ltd., Stceton, Yorkshire. C 185

WANTED

17/6 for 36 words (min.) then 4d. per word. Box 2/-

ALL KINDS OF BOTTLES, JARS, SCREW CAPS, cartons, packaging materials and manufacturers' stocks of all kinds bought at fair price for spot cash. We are buyers of merchandise of EVERY DESCRIPTION. Clearance Stocks, Discontinued lines. Surplus and Redundant Stocks, Should you have anything for disposal, please send us samples and particulars. Reliance Trading Co., 13 New College Parade, Finchley Road, N.W.3. C 153 MEDICAL BOTTLES, tablet bottles, closures and all types of packaging materials purchased, no quantity too large. Samples and full details to Noel Davold & Co., 9 Laurence Pountney Lane, Cannon Street, E.C.4, Mansion House 3951-2. C 178 WANTED profitable lines for packing, pay cash against invoice, send price list and full particulars to E. W. Cottam, The Healthgate, Geddington, Kettering. C 2599 WE WILL PURCHASE for cash a complete stock, a redundant line, including finished or partly finished goods, packing raw materials, etc. No quantity too large. Our representative will call anywhere. Write or telephone:—Lawrence Edwards & Co., Ltd., 6/7 Wellington Close, Ledbury Road, London, W.11. Tel.: Bayswater 4020, 7692. C 140

TENDERS

DEWSBURY, BATLEY AND MIRFIELD HOSPITAL MANAGEMENT COMMITTEE

Tenders are invited for the supply of the undermentioned:

(a) DRUGS.
For the period August 1, 1955, to July 31, 1956.
(b) DRESSINGS.

(b) DRESSINGS.
For the period August 1, 1955, to January 31, 1956, to the three major Hospitals in this Group. Forms of tender and details of approximate quantities may be obtained from the Supplies Officer to the Committee, Sealed tenders must be received by me not later than 10 a.m. Monday, July 11, 1955.
Geo. W. Batchelor,

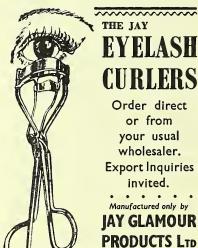
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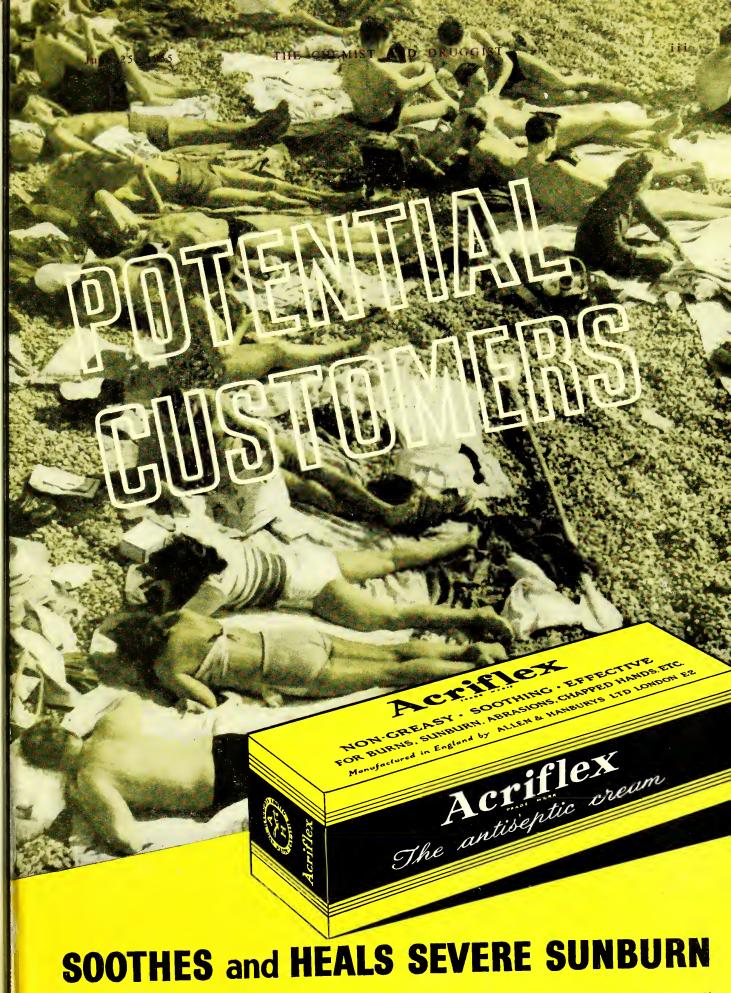
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